NAVAL STUDIES GROUP
PROCEEDINGS

Conference on

THE DEFENSE PLANNING, PROGRAMMING, AND BUDGETING SYSTEM (PPBS): PAST, PRESENT, AND FUTURE

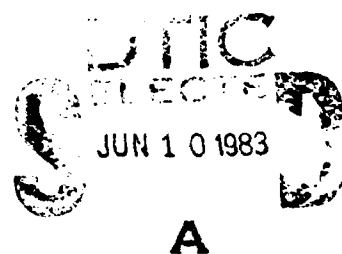4-6 November 1982
Washington, D.C.

Coordinators: Dr. Bernard Rostker
Dr. Lewis Cabe
Editor: Mr. Walter Golman

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On 4-6 November 1982, the Center for Naval Analyses hosted a Defense-wide conference on the Planning, Programming, and Budgeting System (PPBS). This was part of CNA's continuing research designed to help the Navy, the other services, and DoD improve their procedures for allocation of resources. This publication consists of formal papers, transcripts of presentations, and transcripts or summaries of the discussions that followed.

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Encl: (1) Proceedings, Conference on the Defense Planning, Programming and
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1. On 4-6 November 1982, the Center for Naval Analyses sponsored a Defense-
wide conference on service programming. The purpose of this conference was:

- To learn more about the procedures by which each service develops
  its programs within the overall structure of the PPBS

- To examine programming techniques under development

- To provide a forum for interservice discussion of important issues
  of programming.

2. The conference program, the first devoted to programming by the services,
included panel discussions about the PPBS (featuring many individuals who
helped develop the DoD system), presentations from the military services on
how they manage their programming processes, and discussions of techniques for
improving the PPBS process. The printed proceedings consist of formal papers,
transcripts of presentations, and transcripts or summaries of the discussions
that followed.

3. Enclosure (1) is forwarded as a detailed, up-to-date compilation of past
and present information about the PPBS. Programmers should find it especially
useful.

J. METCALF III
DIRECTOR, GENERAL
PLANNING AND PROGRAMMING
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Conference on

THE DEFENSE PLANNING, PROGRAMMING, AND BUDGETING SYSTEM (PPBS): PAST, PRESENT, AND FUTURE

4-6 November 1982
Washington, D.C.

NAVAL STUDIES GROUP

CENTER FOR NAVAL ANALYSES
2000 North Beauregard Street, Alexandria VA 22311

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INTRODUCTION

On 4-6 November 1982, the Center for Naval Analyses hosted a Defense-wide conference on the Planning, Programming, and Budgeting System (PPBS). This was part of CNA's continuing research designed to help the Navy, the other services, and DoD improve their procedures for allocating of resources.

Secretary of Defense Robert F. McNamara established the Planning, Programming, and Budgeting System in the early 1960s to give him the information on which to base his allocation of Defense resources and to help create the framework for the rationale behind the DoD budget submitted to the President and Congress.

At first, the PPBS was highly centralized. Most programs were developed by Secretary McNamara's staff; the military services had little opportunity to contribute to the process. Later Secretaries of Defense, modifying the PPBS to accommodate their own management styles, have tended to decentralize the programming process, depending more on the individual services.

Over the past years, most examinations of the PPBS have been confined to the Office of the Secretary of Defense. The Defense Resource Management Study and similar analyses have concentrated on such innovations as the Defense Resources Board and Defense Guidance. Little attention has been paid to the functions and processes within the individual military services. A long-neglected aspect of the PPBS, therefore, is the process by which the services develop the programs and budgets they send to the Secretary of Defense.

During CNA's review of the Navy's process for developing the FY 1984 POM, a common question was raised: "How do the other services do it?" It was evident that the OpNav staff and the programmers of the military services could benefit from a detailed understanding of the approaches of the various services to programming. Though all the services work within the common structure of the Defense PPBS, each has developed its own internal systems. There has been little sharing of ideas.

The Navy therefore proposed to the Director of Program Analysis and Evaluation in the Office of the Secretary of Defense, as well as to the other services, that CNA host a conference to explore the past, present, and future of PPBS.

The conference, centering on programming in the services, had these general objectives:

- To learn more about the procedures by which each service develops its programs within the overall structure of the PPBS.
- To examine programming techniques under development
- To provide a forum for interservice discussion of important issues of programming.

The conference program therefore included:

- Panel discussions about the PPBS, featuring brief talks by many of the people who had developed the DoD system.
- Presentations from each of the military services on how it organizes and manages its programming process.
- Discussions of techniques for improving the PPBS process.

Participants included members of the programming staffs of the services, members of the OSD staffs involved in programming, and individuals from the business and academic communities who had been selected for their research into elements of the PPBS process.

These printed proceedings consist of formal papers, transcripts of presentations, and transcripts or summaries of the discussions that followed.

Dr. Lewis Cabe
Center for Naval Analyses

OPENING REMARKS

Dr. Bernard Rostker

Director, Navy Management Program
Center for Naval Analyses

Dr. Rostker: I thank you all for coming; it is truly CNA's pleasure to host this conference.

Let me start off by talking a bit about the logic behind the conference. We have a very ambitious schedule that runs full days in the true sense of "full days." We had hoped originally to hold the conference at some place away from the Washington area, such as Williamsburg. The quid pro quo for the nice location was to be full days of participation. But travel restrictions on many service members precluded us from taking the conference out of town, and so we brought it here to the International Club. Since the basic structure of the conference was already set, we chose to continue it as planned rather than make last-minute changes.

I think the title of the conference is quite apropos—"PPBS: Past, Present, and Future." We had three purposes when we organized it. We tried to establish a base by inviting people who had worked on the PPBS system since its inception. (That is the purpose of the two evening sessions that lead to the round table on Saturday.) The people who will participate in the evening sessions were key players through the development of PPBS in the 60s, through its young adulthood in the 1970s, and now as it moves into full seniority in the 1980s.

We also wanted much of the conference to concentrate on service programming. A great deal has been written about defense programming and the role of the Secretary of Defense. The Defense Resource Management Study in the late 70s concentrated on the organization of OSD, raised questions about the role of MRA&L, DDR&E, and the role of the Defense Resource Board. Those were very critical questions, but there is no doubt that a great deal of the

programming action—some might argue most of the programming action—occurs at the service levels. The services are very different institutions. They all work within the same OSD structure, but, yet, they have responded to that stimulus with entirely different organizational approaches to programming. At CNA, we have, for the past year, been taking part in a study of the Navy programming system. Invariably, whenever we brief the results of our work within the Navy, we are asked, "How does the Army do it? How does the Air Force do it?"

One objective of this conference is to help answer those questions. So, a major feature of the conference will consist of presentations by each of the military services on its programming procedures: how it organizes, how it handles the basic problems posed by OSD, how it creates its Program Objectives Memorandum.*

The third part of the conference consists of invited papers. It is our hope that we can provide a forum for presenting new ideas for improving the programming process. The idea is to look at work done for the individual services by people who are trying to improve cost modeling or support programming—or, indeed, any topic in a wide range of topics.

This conference is intended, generally, to enhance the discussion of programming at the service level.

I think that is enough introduction and rationale for the conference. How successful we will be will be determined late on Saturday, as we wrap up the three major subjects that we have pulled together here.

The first presentation this morning is by the Air Force. General Cunningham will make the presentation about Air Force programming.

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* Either "Program Objective Memorandum" or "Program Objectives Memorandum." Usage varies.

A COMPARATIVE REVIEW OF AIR FORCE PROGRAMMING

by

Major General C. J. Cunningham, Jr., USAF

Director, Programs and Evaluation
HQ, United States Air Force

It's a rare opportunity that I have to thank Admiral Metcalf and the Navy for anything, so I will take it now. I very much appreciate the opportunity to come to speak to this gathering. The Center is to be complimented for giving the services the opportunity to illuminate what we do in the programming business. This is an area that has drawn considerable attention and needs much more. Unfortunately, many of those who would do that scholarly work often live a long way from the trenches.

Most of what I will address--and the way that we are programming in the Air Force--is evolutionary. Programming techniques are hard to keep up with, and the results are often not readily identifiable with popular principles or conventional wisdom. That is for good reason. We all know that the competition for tight resources in the government, for many diverse reasons which have merit, creates a complex environment. So, let's examine how the Air Force works in that complex environment.

I followed the format that was provided by the Center for presentations by the services to the degree I thought would be useful and would fit our case. **[SLIDE 1]**

Slide 1

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│  ⚜ USAF PROGRAMMING AND POM DEVELOPMENT  │
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│   ● PHILOSOPHY OF PROGRAMMING           │
│   ● RELATIONSHIP TO SERVICE PLANNING AND BUDGETING │
│   ● ORGANIZATION FOR PROGRAMMING        │
│   ● POM DEVELOPMENT PROCESS             │
│   ● POM DEVELOPMENT IMPROVEMENTS        │
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This morning we will first address the philosophy of Air Force programming and the way that we use the guidance we get from OSD. That guidance is important, and we do pay attention to it. It's not easy to do so, and it's not always possible to do so. We, naturally, consider the guidance within the framework of our own philosophy of programming. That should be no surprise.

Then, we will discuss the relationship between planning and budgeting and how that relationship is really achieved by programming. A programmer's job is to fit a budget to those changes in planning that come with time, events, and changes in the threat. So, I'll talk a little bit about our programming as it makes that plan fit the art of the possible, that is, the facts of life, and dollars that really exist.

Next, we will talk about how we're organized. I'll address a wiring diagram that will show you how we're organized in terms of an Air Force Board Structure to corporately develop the content of our Program Objective Memorandum. Remember, of course, that the service POM is the way that the services would achieve the goals outlined in the Defense Guidance and the objectives we know our Commander in Chief and our Secretary of Defense want us to move toward. It is this service view of "how to get there" that includes each particular service's judgment--military judgment. The POM, this judgment, becomes modified, and we go through a program review, into a BES, and then through a budget scrub (the Program Budget Decision process). So, the POM is really what the service thinks is the best way to meet the President's and OSD's guidance.

Some time ago, I was with my boss, General Bill Campbell, and we had some business with Vince Puritano one night, and Vince reminded us that, in his estimation, the POM is just a rough starting point. Well, I take some exception to that. If those who deal with the President's budget will pay attention to the service POMs, they can see that the services have really pulled together the relatively unconstrained planning needs and the realities of the budget in a comprehensive, coherent way--with very important military judgment.

I'll say more about the POM development process, and I'll gear those remarks to a time chart that you are familiar with. I ask you to bear with me on that, because it's necessary to understand the pressures of the tight schedule within which our decisions must take place.
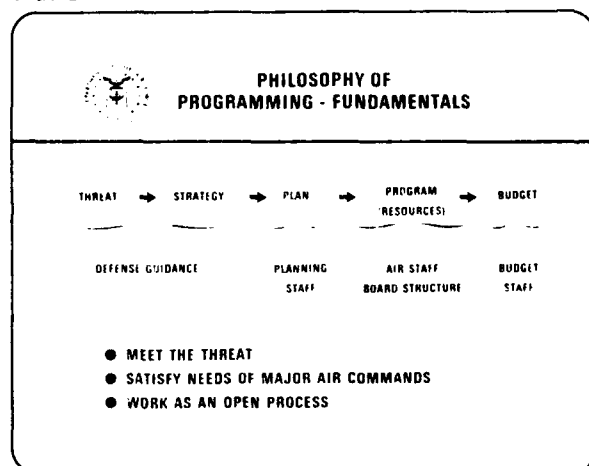
Then I will touch on how analysis-- specifically, mission-area analysis--is important to us and how it applies to building

an Air Force POM. We're fortunate to have Col. Jim Donahoe here with us today, and he'll speak after lunch about Air Force Wide Mission Area Analysis, which is a growing and ever-improving capability. I think you'll find Jim's presentation very informative.

Finally, I will wrap up by outlining some potential improvements to the planning, programming, and budgeting process. We need to acknowledge that those three activities are merging and undergoing significant modifications.

[SLIDE 2] Now, it's useful in terms of philosophy to remind ourselves that we in the military are in big business; that business is to meet the Soviet threat and be prepared for other threats. Certainly, this is conventional wisdom and shouldn't be controversial. If it is controversial, we really have a problem. But the threat has got to be what drives us in defense. After the threat is assessed, we develop a strategy and policy to meet that threat. That strategy and policy then transition into plans which become more specific in nature.

Slide 2

PHILOSOPHY OF
PROGRAMMING - FUNDAMENTALS

THREAT → STRATEGY → PLAN → PROGRAM → BUDGET
(RESOURCES)

DEFENSE GUIDANCE   PLANNING   AIR STAFF   BUDGET
                     STAFF   BOARD STRUCTURE STAFF

● MEET THE THREAT
● SATISFY NEEDS OF MAJOR AIR COMMANDS
● WORK AS AN OPEN PROCESS

To accomplish plans, we need resources. Now, theoretically, the arrows on this chart indicate that plans will just go right into a program and then into a budget. While it appears as a smooth transition, it is in reality somewhat disconnected. The process should flow from relatively fiscally unrestrained planning, through the fiscal constraints of programming, and then into a fine-tuning budget review. This is a difficult task, since many of the defense programs we need--really need--simply cannot be afforded. But--and this is important--we do make a valiant effort to work

new and needed programs into the Five-Year Defense Program. And, believe me, at least in the Air Force, there is very little fiscal flexibility left when we finish putting together our POM. There are events that naturally force changes to Air Force programs, but any real flexibility--the shock absorber, if you will--is very much taken up during our programming activity.

The one thing, my friends, that we must never let happen to us--and it is an insidious thing and can take us over--is that all those arrows could be reversed. In fact, there are some cynics who may observe that they are already reversed.

Where would we find ourselves with a reversal that would take us backwards from the number of dollars available to the resources that could be had with them? What kind of constrained strategy would we be forced to develop around those resources, and, given that strategy, what kind of imaginative planning could result? Finally, with constrained dollars limiting our planners, you can bet the threat would suddenly become watered down and unrealistic--but affordable! We would have a nice, neat, costed package, but we would be duping ourselves and the American people. So, simply stated, it is proper that the arrows all point from relatively unconstrained conditions toward tighter and tighter dollar constraints.

In addition, as the Air Force goes through this whole process, we are working more and more with our Major Air Commands. And we do that in an open, aboveboard fashion, with the field commanders fully involved.

The preparation instructions for this CNA conference gave direction that this should be a discussion of comparative service approaches to programming. Well, rather than that, I will say a few comparative words about what we have been doing within the Air Force. We have traditionally used a corporate structure, but much of our internal process was closed. There was a feeling that much of our wisdom resided only in the Pentagon.

We have found that nothing could be farther from the truth. We have learned that our greatest wisdom resides in the field with those people who will fight the war, who really know what's going to happen, who are on the scene and, who are ultimately accountable. So, we have transitioned over the last 2 years to a much more open approach to programming, with close interaction with our field commanders. This has paid huge dividends. Among those dividends is that the field commanders have come to better understand programmatic

problems and fiscal constraints and have been involved in finding practical solutions to both those problems while ensuring that we understand the needs for combat capability, and the reasons for those needs. Certainly, every student of any kind of management at all would say that if you participate meaningfully in the resolution of problems, you are far better adapted to accept the results. So, the open process has served us well for the last 2 years, and it is emerging and improving.

Now, as we go through this whole process, we are guided by national priorities of what types of programs should receive the most emphasis. [SLIDE 3] The rank-up depicted here is how we interpret the OSD Defense Guidance priorities; however, the Defense Guidance does not provide a totally clear picture of how different mission areas should be prioritized. As a result, you may find that the services may prioritize their programs with varying emphases.

Slide 3

PHILOSOPHY OF PROGRAMMING · PRIORITIES

- REDRESS STRATEGIC IMBALANCE
- CORRECT READINESS AND SUSTAINABILITY
- INCREASE MOBILITY FORCES
- MODERNIZE
- EXPAND FORCE STRUCTURE

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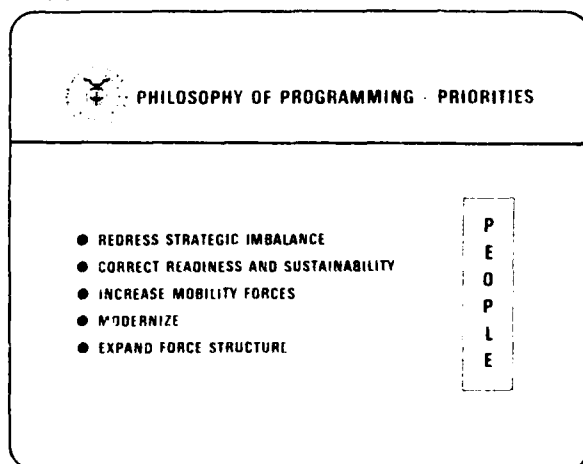
Within the Air Force, our emphasis is to correct the strategic imbalance. That has been at the forefront of our work for the last 2 years, starting with the '81 supplemental, the '82 amendment, the '83 POM, the Budget Estimate Submission, and the President's budget. The same holds true for '84.

The need for improved readiness and sustainability was acknowledged even before we started to work with the current Administration, as we started to work on this problem toward the end of the last Administration. So, the idea of readiness and sustainability has taken hold.

Later in the discussions, General Noah will address the Army's methodology for

building its POM. The Army has the same problem with fiscal constraints that we do but has improved and developed a stronger fighting force. However, if the Air Force and the Navy cannot transport that fighting force to the beach or into battle, then all of General Noah's—and all the Army's—efforts are wasted. So, mobility has come to be an important priority. Now, we all have some tremendous problems here. We're aware of that, and certainly OSD has worked hard with all the services to resolve this problem. We don't have it resolved yet, but we are looking at some new programs that will reduce the airlift shortfall.

Here is an appropriate point to say that all of these priorities have got to be kept in balance—the great nebulous balance that is so hard to explain. It's very hard to explain balance when we deal with a lot of single-issue-oriented persons within our services, in OSD, and elsewhere. So, a balance is a difficult thing to strike. Be this as it may, we attempt to balance all priorities and have applied our best military judgment in doing so. This forces hard decisions, such as "Do we correct existing readiness problems, or do we buy new systems?"

Modernization enters here. For example, the average age of fighter airplanes for us should be no more than about 10 1/2 years, and there are a lot of good reasons for that. One is that the longer you keep these things around, the more you modify them. The more you modify them, the tougher it becomes to phase them out. The resulting spiral is obvious. You can get into a business—and we saw the RAF do it—where you can fly up your own tailpipe, and after a while you end up with nothing but outmoded weapon systems, asking others to help. So, modernization can't be forgotten but must be worked in consonance with new weapon system platforms.

Also, we know that to hold the force we have, with the number of fighter wings that we have (now running about 36) at 10 1/2 years requires us to procure new airplanes on the order of 265-270 fighters a year. Now, if we're going to build to the 40-wing force that we really need—which, by the way, is far below our objective force—and then build to 44 wings, a goal acknowledged by our Secretary of Defense, we've got to be buying about 370 fighters a year. In reality, we'll only be buying 180 fighters or fewer, in FY-1984. So, we're a far cry from achieving true modernization. Fighter procurement is only one example.

Finally, we get to building the force. I've already touched on that. We know we're

looking at a threat that is outpacing us in weapon system production, four to one. Just use four-to-one, and you can fit it up to almost anything except manpower; then we're roughly behind by two to one. And I dare say that, within our present fiscal constraints, our current production rate and manpower build are just about the best we can do. One last point on building the force: You must not assume force expansion to have a priority that's commensurate with its physical location on that slide. Building the force is essential to us. And it is kept in a balanced sense, along with everything else we need to do.

People are on that chart, ranked alongside all of the priorities. Our Chief of Staff has made it clear that people are our number-one priority. That kind of goes without saying; after all, as good as everything is, you'll get nothing done without people. You've got to have good people, you have to take care of their pay and quality of life. Also, I submit that quality of life is having the right parts and having the right equipment in the field. Flying and maintaining 25-year-old airplanes that their fathers--or even grandfathers--have flown, is hardly a people program. So, people run throughout our business.

|SLIDE 4| Now, let's talk a little bit about planning and budgeting, and then we will go into a more detailed look at programming, which is what really ties together the planners' desires and the realities of the budget. First, the planners tell us where we're going. They provide us with the road maps that are coordinated among all the various planning agencies. Service, JCS, and OSD planners work together to ensure we all go down the same road and toward the same objective. Perhaps the one document that should capture the essence of this is the Defense Guidance. The DG has been significantly improved in the last 2 years, and the services are now working more closely with OSD planners to make guidance more affordable and achievable. Mission-area analysis is a way we have found in the Air Force planning world to fit planning objectives and cost together. It's very useful to us, and its use is growing.

Resource impacts must be acknowledged in the planning process. Planners must do more than just look at the objective force. In a classic sense, planners are often thought of as just looking at the objective force. I don't think that's true in our service. I would hope not because a planner's real value comes through when he is able to translate the objective force in a prioritized way into what should be done to meet the threat. Now, it's most important not to back into redefining the

threat to equal available dollars. We programmers work with planners to make sure that doesn't happen. But it's planners' and programmers' interaction up front with the Defense Guidance that brings them together toward the real world of fiscal constraints in our Air Force PPBS process.

Slide 4
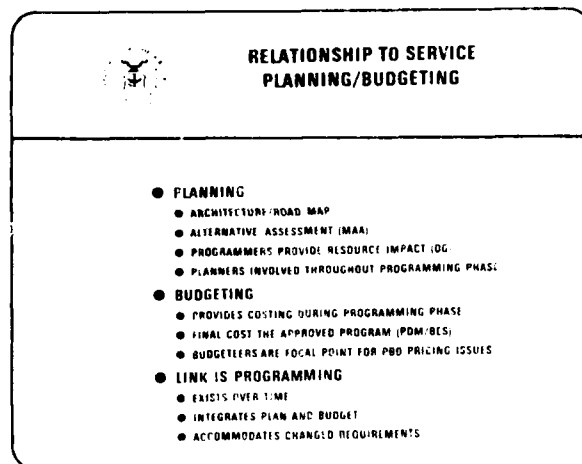
Now, budgeting deals more with cold, hard reality: "What are the costs of what we're doing?" And here is where Independent Cost Analysis and Cost Analysis Improvement Groups come into play. We in the programming business have been able to improve the life of the budget community in the Air Force through automated and disciplined use of Program Decision Packages (PDPs). That's what we call those entities that we build to track each Air Force program. And, though the PDP is a process that started back in ZBB days, and we no longer do true ZBB, we kept the PDP as a useful tool. We improved the discipline so that all the manpower, program phasing, logistic support, and pricing in each PDP is a quality input.

We push for quality when we first build each PDP, and we keep each package updated on an almost daily basis. This means that we no longer go into those three-week-plus drills to polish costs and redo program structure. The budgeteers now support us throughout the entire POM-build process, working in parallel across our staff to fine-tune our pricing. This has allowed us to go into a pricing exercise and finish it up in 7 days. What used to take us 3 to 4 weeks, we now do in 7 days. That helps us in responsiveness, and it certainly has helped us to ensure discipline, both in the field and in the headquarters

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staff. We now know, right from the start, what the program is really going to cost us, and when wiggles happen we are able to readjust our PDPs and thus the total POM build, almost in real time.

The budget people now live with us all the time. They're very important to us, and we intend to stay linked to them in every level of our corporate process in developing our programs. And, once again, I say that programmers are the link, the link with the plan that said, "Hey guys, we've looked at the threat, we've got our strategy and policy, we've got a plan, here's what we need, here are the resources we have to work with."

Linking up programmers with the planners and the budgeteers has prevented surprises and has added stability to POM development. Our programs don't vacillate over time; they don't go through wild swings of the pendulum. In fact, it is our view that the essence of stable programs is to live with that FYDP. Put that FYDP together right and then stand by it, and this is counter to any notion that a POM is "after all, just a rough departure point." Certainly, the President's budget is no rough departure point as it is extended out through the Five Year Defense Plan. The '85 column should not look very different from the '84 column, and the '84 column should not be much different from what we saw in '83. If there are wild swings in there, we are not doing our job as disciplined programmers.

So, I would urge those who are in the business of pushing for stable programs to recognize that there is already built into the FYDP all of the essence of stability. Our Secretary of Defense has said there's only about 7 percent flex in the Defense budget. I think that's what he was alluding to. There's a lot of stability in there. And those people or agencies that would make major changes, especially late in the PPBS process, must recognize that such action is very destabilizing.

This says that what we've really got year to year in the FYDP represents a series of ecosystems. We're all very familiar with that. That's a nice way of saying, "You want to do something different? You want to add a new program? Well, what's your offset?" And remember, when you add and offset, you often create two destabilizing inputs.

Now, some changes will be necessary. National policy may change, or international climates may vary, and, yes, we are able to accommodate some changes. Now we're very concerned about possible changes in '85 that are tied to actions pending on the '83 and '84 budgets, and I'm going to digress for just a second here.

There was a great deal of concern, a little over a year ago, about '84. It comes with the season. After all, where is my security blanket? We have no approved '83 bill. We don't know about '83, let alone '84, and the timetable says we're now supposed to start work on '85. However, unless major destabilizing changes to '85 occur, we should not have problems. Why? Because the '85 column with what we know today—the present position—is not going to look much different from the '84 column. And, of course, the reason for this is that we have carefully planned, programmed, and budgeted for all of the FYDP.

My estimate of how much flex is in the Defense budget, year to year, is not about 7 percent. Perhaps at OSD level it's about 7 percent, but I would remind you that by the time it gets to the service level, it's less than 3 percent.

Then, if, when the Fiscal Guidance is published, there's a little withhold on Defense Guidance from what's in the FYDP, that further perturbates the system.

For example, in the Air Force, we were looking for a little over $92 billion in '84, which included defense programs, NFIP, and all our other business, and then $2 billion was held back when the Fiscal Guidance came out in January. So, as we put together our POM, we had to relocate $2 billion worth of programs. It wasn't as if we had a bunch of slop and wedges in our POM; it simply wasn't there.

So, we restructured programs. What does that mean? We'll never kill anything; instead, we are forced to stretch programs out. That's destabilizing, and I would urge those who deal in that kind of policy to recognize that there is a destabilizing effect when arbitrary withholds are made. And this is tough for all services to deal with.

Now, I live in the trenches; that's why I know that. It just isn't something you go out and say, "Oh well, stretched-out programs will work if we do a good job of programming." No, you can't assume that. Some changes can be made, but it's a tough environment when you force late changes; there isn't much fiscal slack, and when you withhold on the front end, you further reduce that slack.

When the Air Force moved into building its '84 column, it was looking at not much more than 1 percent flex. And if you examine

our POM budget closely, you will see the new initiatives that amounted to about $1.5 billion. The rest of our budget represented stable programs carried forward from the last FYDP that were restructured slightly to accommodate cost and inflation.

[SLIDE 5] We have talked quite a bit about the programming process; now, let's look at the Air Force organization that puts it all together. This is our board structure. Its foundation rests on 13 panels. They are headed by colonels from each of our basic mission areas, and they have representation from across the staff on each panel.

Slide 5
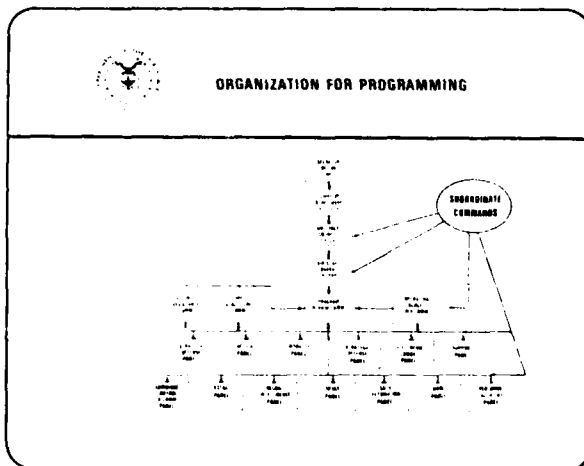
Each panel is much like a mini Air Staff. Their job is to work with the Program Element Monitors (PEMs), with the Systems Officers (SYSTOS) in our Air Force Systems Command, with the Program Offices, and, finally, but perhaps most important, with the Major Commands. The panels put each program together and then bring those programs forward to the Program Review Committee (PRC).

The PRC is next in line, above the panels. It is also fed information on foreign programs by the Security Assistance Committee headed by our Director of International Programs. In addition, our Force Structure Committee (FSC) keeps the PRC abreast of the impact of programmatic changes on the total force structure. Our Operating Budget Review Committee (OBRC) works with the PRC to ensure proper programming of all O&M items. At the same time, all of the Major Commands of the Air Force are feeding into all levels of our organization, sometimes simultaneously but at different levels of detail. In essence, the

PRC pulls together the POM and carries recommendations forward. The PRC is the body that integrates our POM. Seventeen colonels and GS-15s and one brigadier general do that. They carry their recommendations up to our Air Staff Board at the two-star level.

Now I find myself in the unique position of having just chaired the PRC for the last two years, and now moving into the position of chairing the Air Staff Board. The board reviews the PRC's recommendations, makes certain judgments with regard to those recommendations, and, at times, sends the PRC back to the drawing board. I may tell the analysis people, "We want this looked at in greater detail," or "We need mission-area analysis to keep us objective." Some very tough recommendations have got to come from that board, but we usually do this from a menu of selected alternatives provided by the PRC.

The next step in our programming organization is the Air Force Council. The Air Force Council is chaired by our Vice Chief of Staff, a four-star, and is made up of three-star Deputy Chief of Staff representatives. All the while, the Air Force Secretariat is interactive at the PRC and Air Staff Board levels. And the Assistant Secretary level is interacting with the Council.

The Council then puts the final polish on the POM, makes final recommendations, and sponsors a briefing that is given by the Chairman of the Air Staff Board to the Air Force Chief and Secretary. This briefing is attended by the senior staff from both the uniform side and the Secretariat, as well as the four-stars from the field.

It is important to note that this is not the first time our four-star MAJCOM Commanders from the field have been involved in the POM. We brought the four-stars in twice, and we brought their two-star planners in three times. Again, that's all part of our open process. So, we finally are to that point where we have our four-stars sitting in with our Secretariat and our senior staff for the final buy-off on our POM. After this approval, the budgeteers put it into proper detail, and we send it downstairs to OSD, where some of you are the recipients.

[SLIDE 6] Now let's look at the whole PPBS schedule. From September of '81 through January of '82, the Defense Guidance development was underway. The services were brought into this process and ultimately used the Defense Resources Board as a vehicle to resolve service/OSD DG disconnects. We in the Air Staff were working interactively with OSD,

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and I thought that the meetings chaired by General Stillwell were superb. They were a tremendous opportunity for everyone from the services to get down there and get their oars in. In some cases, we felt the guidance was too specific, ambitious, and restrictive. To understand our concern, you've got to remember that guidance should be a broad-brush plan that asks for a service view of how best to meet the threat. To do this best, we do not need Mission Impossible guidance or a detailed cookbook. Guidance should allow us the latitude to express our judgment and tell or justify our story, and the interaction that we've had—especially during this Administration—during development of the Defense Guidance, has been very useful and open. Interaction starts at the action-officer level and does not initially require senior leadership involvement. It's only as we raise specific issues related to guidance that our senior leadership gets involved, and the vehicle for their involvement is the Defense Resources Board review.

Slide 6

POM DEVELOPMENT
PROCESS - INFORMATION FLOW
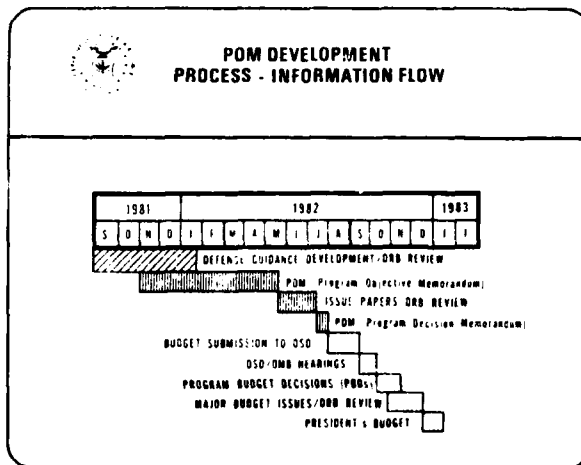
Now, we have already talked a lot about building the POM, and the chart shows us starting that action typically in November. I'll just—very quickly—review for you what happened with the FY 1984 POM build. First, the major commands came in with their prioritized POMs. They briefed our panels, and our panels put together their recommendations. This interaction lasted through January. At the Air Staff we compared the major command inputs with the President's budget, and the Program Review Committee fitted up a recommendation. This was passed to the Air Staff board (the two-star level). They took a good look at that first line-up. The structure for

consideration in that forum was the Defense Guidance: "What's the planning input?" "How much money do we have to work with?" "How do we best spend that money?" And, finally, "What does MAA say about the way you're spending that money in terms of capability and needs met?"

We then did a 7-day pricing exercise based on that first rack-up. After that, we briefed the Major Command four-stars and the Air Force Council. We then folded in their recommended changes and did another pr cing exercise. Throughout this whole process, there was Command and Secretariat involvement. The four-stars from the field were called back in to bless the final product, and in May we sent our POM downstairs. To me, it's significant that we really had our POM in shape weeks before the turn-in date. And there was no midnight drill to get the POM downstairs. That POM was put together 2 weeks before the deadline. It was ready and blessed.

Following POM submission, we began the OSD program review. Issues were received, categorized by basic mission areas, and arranged in nine issue books. For each issue book we appoint a colonel-level issue book team chief to oversee the preparation of the Air Force portion for his particular area of expertise. Usually it's the same individual that chairs the appropriate functional panel. For example, for the Nuclear Forces Issues Book, the Strategic Panel Chairman was in charge. For the Conventional Forces Issues Book, it was the Tactical Panel Chairman. We then brought each book under the direction of a general officer. And he was responsible for briefing that group of issues and the recommended Air Force position to the Air Force Secretary and the Chief of Staff. That's how we prepared our top leadership for program review by the Defense Resources Board. We phased our schedule right through July that way, and, though it was an extremely fast train, my people in our Resources Division did a fine job of maintaining order and discipline and ensuring that our Secretary was well prepared to present the Air Force position.

We work it hard. And, my friends, I tell you that ADP is the only way you can do these things. The idea of working the programs manually, as the Air Force was still trying to do several years ago, was ludicrous. You just get lost in the morass of detail, and there's no way to keep track of where you are going. We have an interactive system, of course, built on Honeywell systems using Multics, and we can turn around our prioritizations and adjust our programs, literally overnight. And, believe me, we often have to do that.

Following the Program Review, the SecDef provided each service with a Program Decision Memorandum directing changes to each POM. Now, in some cases it was very difficult to follow those directed changes exactly. For, again, it took the services almost six months to put together the POM, and it represents an extremely complicated, interrelated set of programs. To change that following a few DRB meetings is bound to cause perturbations. But we do make some adjustments. For example, some of you might ask why the Air Force insists on killing the TR-1. Well, it isn't that we want to kill the program. There is a message here. It is simply the cumulative effect of all those other programs that we and OSD are trying to do, and it's an expression of the best judgment of the service that the TR-1 is one of several viable offsets. It's difficult for some people to realize that to add a program you have to kill a program.

Following the BES submission, the service POMs (as amended by the PDM) are once again reviewed by OSD, and for this we shift the responsibility to a Budget Review Board. But the same panels that you saw on the previous slide are responsive to that board. They work the Program Budget Decisions (PBDs) and prepare an opinion. The Budget Review Board is made up of appropriate colonel representatives from all our staff agencies and is chaired by our two-star Director of Budget. Budget analysts do much of the work in fine-tuning the PBDs, but again it's the programmers that make sure each change fits into the big picture.

What really ties this all together is the panel representatives. These are the same panels that worked the whole business up through the POM and through the program review and who now develop and participate in the response to the Chairman of the Budget Review Board.

Two things happen that I think are very important. The people who are going to work on the next POM directly experience the changes to our baseline that occur during the PBD process. Lessons are learned there. We read that mail. We might not always answer it to everyone's satisfaction, but we read it, and we get the intended messages. And we get it to the people that are going to cycle those messages right into the next POM, i.e., the panels that will take the inputs from the Major Commands. That's been an important refinement; this is really what we call the open process, and we think it's going to pay us big dividends.

Following the resolution of the major PBD budget issues, we finally submit our service

portion of the President's budget. Now, we wish that the resolution of major budget issues were not worked in such a ragged fashion. We understand that the press of events doesn't always allow more polish, but I will tell you that when PBD 700, the C-5/KC-10 wrap-up, came to us dated 2 February last year, it was extremely difficult to deal with. And for the Air Force to have had that kind of major program priced, in large part, remotely from the Air Force and then only at the low working level, meant that the package certainly did not get the kind of scrutiny we give even the smallest programs when we develop our own POM.
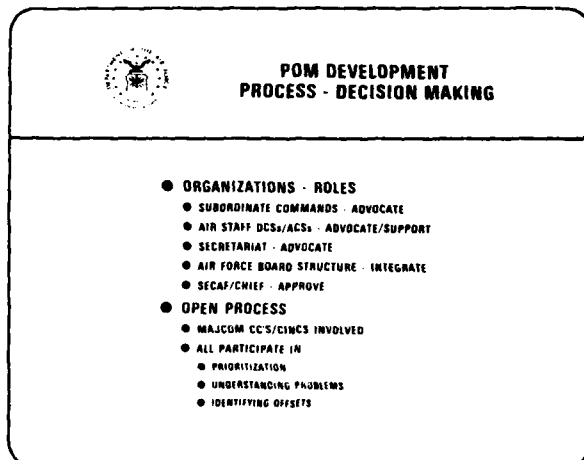
This caused us a great deal of eleventh-hour difficulty. After the President's budget was in, we were fighting to explain all the logistic tails that really entered into that late PBD decision. We were still correcting Fiscal Guidance for the Air Force—as most of you know—as late as the 13th of September, all as a result of the late adds. I think a significant point that I must make today is a request to all involved in late PBDs that they must be put together with some semblance of order and must have the right level of participation as they are built. It would save all the services and OSD a lot of trouble.

[SLIDE 7] This slide summarizes what I just talked about but expands on each organization's role. Subordinate commands advocate and participate; that is our open process. They participate in solving the problems that advocacy creates. In the Air Staff, our Deputy Chief of Staff and our Assistant Chief of Staff advocate and support programs, but, remember, they wear two hats. Those people also sit in the corporate board structure, where advocacy is out. Then it is a matter of what is best in the total context of the overall program. The Secretariat also advocates, and rightly so. The board structure integrates advocative programs and makes recommendations, and that's key. It is in the board structure that advocacy must be set aside. Each program is reviewed both separately and as a part of the total picture, and here we once again reap the benefits of mission-area-type objective analysis. Finally, with our four-stars from the field present and having made their inputs, the Secretary and the Chiefs approve the total program package.

We're big on this open process of working up front with our field commanders. We have seen dividends from it. It has not been cumbersome, it has not been impossible to do. With the help of ADP, we have been able to keep it in an orderly fashion. The information exchange has greatly improved the understanding in the field of what OSD needs to have done and what they're trying to do. This

open process has certainly helped us to understand what our people out there, who are most accountable for the way the programs work and must execute the war, really require. We understand them much better. Credibility is up on all corners.

Slide 7

POM DEVELOPMENT
PROCESS - DECISION MAKING

- ● ORGANIZATIONS - ROLES
  - ● SUBORDINATE COMMANDS - ADVOCATE
  - ● AIR STAFF DCSs/ACSs - ADVOCATE/SUPPORT
  - ● SECRETARIAT - ADVOCATE
  - ● AIR FORCE BOARD STRUCTURE - INTEGRATE
  - ● SECAF/CHIEF - APPROVE
- ● OPEN PROCESS
  - ● MAJCOM CC'S/CINCS INVOLVED
  - ● ALL PARTICIPATE IN
    - ● PRIORITIZATION
    - ● UNDERSTANDING PROBLEMS
    - ● IDENTIFYING OFFSETS

Everyone participates in what we prioritize, what the problems are, and in solving those problems, i.e., what you offset with, what lower priority program has got to go. And here it's a process of constant education. People move in and out, not unlike OSD and other places, and we have been able to use this open process to get the point across that you don't just say, "What do I need new?" You must say, "What do I have old that is no longer required if this new thing occurs?" It seems to me—and now I'm talking from 2 years of experience in the Program Review Committee —that this is the essence of discipline in programming, and to back this up I won't talk to anybody about any new initiative without asking him, "O.K., what goes?"

"Well," he may say, "I don't have anything to go, I'm a service or support organization. I can't give anything up."

That is the wrong approach. In the United States Air Force or in OSD, we must first ask, "If we want to do this great thing of high merit, what can we afford to give up?"

Our generals are supposed to understand that. Your SESs are supposed to be big enough, smart enough, broad enough to be able to deal with that.

People say, "Hey, don't bother me with that; I'm just telling you what you have to do. I'm giving you the requirement."

And to that I say, "Then, you've got no entry into the fight."

For example, there is a space community. There are great things we must do in space— we, the United States of America. We've done great things; we have to do many more things. But, for everything that we're going to do within this ecosystem that exists within defense, we're going to have to stop doing something.

I recently spoke at the Space Symposium in Colorado Springs and explained all this to them. The advocates of our needed space programs must get with those users who have things that possibly will not need to be done in the conventional, current way of doing things, should we be able to do it better, cheaper, quicker in space. So, do some business. Introduce yourselves to one another. Go face the music with somebody and say, "We're going to have to pay for this. Maybe your program will be one thing that could go."

It's just a matter of doing business, and the idea of identifying offsets is one that, I am happy to report, in the U.S. Air Force has come of age. I'm convinced that the only way we've been able to get this into our lexicon is because of our open process. That's been the key.

In what I call the frag order, in the directions for this briefing, they asked that we talk about analysis. And this is an area that I always have looked at with some concern. [SLIDE 8] The apparent validity of most analysis is so overwhelming that it is often accepted at face value. If you're unwilling to accept it at face value, you've got to go into a profound and time-consuming examination. And all those single-issue persons who look only at their own programs can always reference a multitude of studies that have been done to prove their point. But, more important, we must realize that analyses must be kept in balance with military judgment.

There's a lot of analysis going on between the ears of our four-stars that, although not very carefully documented or presented in a very scholarly way, must be considered, understood, acknowledged, and, in fact, responded to.

Nevertheless, cost analysis is vital because OSD says, "If you can't quantify it, you're not going to get it." Fair enough. If you can't tell your story, you don't have an entry. So, cost analysis is a factor; we know that. It's true everywhere—certainly true when we carry our case to the Hill.

**POM DEVELOPMENT
PROCESS - ANALYSIS**

- COST ANALYSIS
- MISSION AREA ANALYSIS
- OPS ANALYSIS

Mission-area analysis is important to us because it is tied to the first thing we started with in this presentation, called the "threat." Cost analysis alone does not acknowledge the threat. That is the threat to this country, to our freedom. Mission-area analysis does that. So, it is a very healthy type of analysis and must be considered concurrently with cost analysis.

Finally, you have operational analysis, as accomplished by the OSD Director of Studies Analysis. Bob Rosenberg's shop does an excellent job of that and has become much more interactive with us over the past 2 years. The people who are responsible for these kinds of analyses are present at our Program Review Committee level, at our Air Staff Board level, and at our Air Council level.

So, to the degree that we are able to have analyses integrated, we have done so. We now look to improve the quality of the analyses, the scope of the analyses, the understandability of the analyses, and plug them in even more.

The frag also said, "Tell us about rapid adjustment." **[SLIDE 9]**

Well, you know, any time we talk about rapid adjustment—and I'm sure Admiral Metcalf and General Noah had it come to their minds when they saw "rapid adjustment"—there was never a more vivid example of everybody in the Pentagon being pulled through a knothole than that table 1,2,3,4 exercise that we went through in August of 1981. I will tell you, my friends, that if you ever wanted to see the service staffs as close to collapse as we ever dare take them in these types of matters, we were there in August of '81. Admiral Metcalf,

I don't know how it struck you, but we were there. That was the most counterproductive experience we have ever had in this kind of business, and I realize that came from outside. But the scars of that carried forward right into our next POM development. Any time you have to do things fast, you start leaving out the people whose judgment needs to be involved.

PROCEDURES FOR RAPID ADJUSTMENT

- ACCOMMODATE
  - CHANGES TO TOA
  - MAJOR PROGRAM ADDS/DELETIONS
- FUNCTIONAL/CORPORATE TEAM
  - FUNCTIONAL PROPOSALS (STRAWMAN)
  - CORPORATE REVIEW
  - CHIEF/SECAF APPROVE
- PLANNING INPUT AND TOP-DOWN DIRECTION
- PROGRAM REVIEW COMMITTEE ANTICIPATES PROBLEM
  - PANEL PREPARATORY WORK
- AIR STAFF BOARD GIVES DIRECTION
  - COMMAND INVOLVEMENT
  - SECRETARIAT INVOLVEMENT
- AIR COUNCIL AND SECRETARIAT APPROVAL
- SECAF/CHIEF DECISION
- FEEDBACK TO COMMANDS

The first people to go are program officers. Why? Because it takes them too long to accurately analyze, cost, and phase their programs. So, cost analysis goes out.

The field commanders go out because you don't have time to get their reaction. So, mission-area analysis goes out. And, in all probability, the OPS analysis never even had the statement of the problem on paper.

So, there was no analytical approach to that business, and I would extrapolate from that that, any time you get into a rapid response, it's like the old-time secretaries in the Pentagon who used to have a little sign over their typewriters: "If you want it bad, you're going to get it bad." And that's rapid response.

That doesn't mean that we shouldn't prepare for it. We do. And here is the key— anticipate. Now that we have enough order in our Air Force process, we're able to get a little breathing room. We anticipate things to the degree we can and prepare for them. For example, we know that, as we move into building the '85 POM, we could have a difficult situation. So, we are not moving into '85 with an eye toward dealing with a lot of new initiatives. This fall we have not invited all

the commands to present their initiatives in October, November, or December. No, we haven't done that. In fact, we said, "Please hold on to all your initiatives and work with us while we prepare for the '85 POM by way of re-structuring existing programs, and, as the PBDs unfold and as we get a better look at the draft Fiscal Guidance, we all will have a better feel for how much the existing programs will cost. After we scope that problem, we will entertain new initiatives."

This kind of approach is necessary, since we do not yet even have an FY-83 appropria-tions bill. So, we don't know exactly what the direction is; we're not going to go into after -burner. Let's hold back the speed a little bit here, and we'll get a better sight of where the target is, and then we'll set our direction.

Now, there is a danger in too much prepa-ration. There's always a question of how much preparatory work you do without having some-thing become a self-fulfilling prophecy. For example, I'm reluctant to say that the U.S. Air Force might expect a $2 billion hold-back in Fiscal Guidance in January for fear some-body will say, "Well, they expect it, let's give it to them."

I realize that any hold-back decision has probably already been made, and I hope it will not disturb the stability of the FYDP funding.

Major program adds and deletions are the big problem to us. I cited what PBD 700 did to us. Everyone agreed that we got the job done, but it was a rapid-reaction kind of thing, and it was an example of how the service and OSD staffs had to react rapidly. They just could not be expected to do a very good job. And we've been patching that up for nine months. We got into this box because we did not have enough time to really plan. We did not have the guidance from the top down on what the real objective was. Planning input is an item that has really struck us, and again it was during that debacle of August '81, when we worked tables 1 through 4, when our Chief and our Secretary, at eleven o'clock one Sunday morning, were down in the basement of the Pentagon, and the Chief said, "What was the plan going into this?"

"Well, sir, the plan was to cut $1.7 billion in table 1, $3.5 billion in table 2, $7 billion in table 3, and $12 billion in table 4..." whatever it was.

That was when he said, "No, what was the plan? Do we have a planning input? What are we trying to do here?"

"Chief," we said, "we didn't have that." We didn't have time to consider a plan, we have got to respond. He said, "Fall back, get the plan in here, get all the people that did all this wild cutting, sit them down, drive the plan by them, give them a planning input, and let's go from there."

And I guess that's why he was Chief. He was the smartest guy in the room.

That goes back to the need for top-down direction, and we in the Air Force are very sensitive to that. Our Vice Chief of Staff called me in two weeks ago and said, "Look, we're moving into another cycle. What are some things we need to consider here?"

And I said, "Sir, we need top-down di-rection, we need guidance. You cannot program by trial and error."

And I would submit to you that you cannot program by trial and error at service level, and you can't program by trial and error at OSD level. We need some solid, top-down guid-ance any time we launch into anything that de-parts from what I call the stable program, i.e., the FYDP. When we anticipate a problem--and we do anticipate some--we do what we call preparatory work, and we start with our pan-els. Our panels put the answer to the task together, bring it up to our Program Review Committee; they bring it as a recommendation to our Air Staff Board. Now, the Air Staff Board really quarterbacks this action. The Chairman of the Air Staff Board watches the whole game. He sits in on all our Secretary Program Reviews on our major systems and thus knows when a problem is coming up. He looks at all the SARs (Selected Acquisition Reviews) and says, "Watch out, there's a SAR disconnect here. We're going to have to work something out, get with OSD and see what's happening here. That could be a problem." And, most im-portant, he provides top-down guidance on the direction the whole board structure must go. He also provides a filter to make sure that the board structure does not waste time on false starts.

You all have got to start working this. We must not energize the commands on what-ifs. Crying wolf to the commands is the worst thing you can do. Another philosophy we must avoid is to keep the process closed. We must be aboveboard within the services and between the services and OSD.

[SLIDE 10] I thought the ideas on this last slide would be useful to share with you. If you take a look at what the Air Force has done over time, you see that, when we put together our '83 POM, we started this open

process. Incidentally, we started this open process at the insistence of our four-star field commanders. We opened it up and said, "O.K., your XPs are going to be in here, and you all will be in here; we'll work this together. You'll be in periodically. We will tell you where our priority list is over time."

Slide 10

POM DEVELOPMENT IMPROVEMENTS

- FY'83 POM
  - OPENED POM PROCESS TO MAJCOMS
  - INCREASED EMPHASIS ON AUTOMATION OF POPs
- FY'84 POM
  - STARTED EARLY BEFORE RECEIPT OF PRESIDENTS BUDGET
  - EMPHASIS ON NEW INITIATIVES
  - LATE RECEIPT OF PRESIDENTS BUDGET FORCED CONSIDERABLE RESCOPE
- FY'85 POM
  - ESTABLISH PRESIDENTS BUDGET AS WORKING BASELINE
    - REVISE PROGRAM COST
    - CORRECT POM/BES DISCONNECTS
    - FIX ACTIONS IN PBDs & BUDGET ISSUES
    - ADJUST FOR CUTS IN FISCAL GUIDANCE
  - ADDRESS COMMAND INITIATIVES
    - START NEW PROGRAM BY KILLING OLD PROGRAM

Automation saved us and allowed us to provide the Major Commands with a real-time product. We're able to automate our program decision packages, which describe a given program, and provide budget detail as an appropriations breakdown in terms of budget programs and in terms of element of expense code, etc. The programmers can see where the money is going as it moves around in execution and then what the effects of execution will be in the future FYDP years.

Each program is then worked into a master priority list. Our internal Air Force priority list has all our programs in it, from solid, base-line programs right up into those programs we are not quite able to fund, such as an increase in skill training, or modernization of some piece of equipment, etc. We try to stack up our programs in accordance with the priorities that I showed you before, and then we run beyond the funded line, into the programs that go into our POM addendum, and we retain a data base that goes another thousand PDPs beyond even that.

So, we have 525 currently in our Budget Estimate Submission (BES), and we can say the Air Force has 525 program decision packages that are funded. But we have 1,700 in our total data base. That's why it is important for OSD to know we have no wiggle room left.

And it is not just OSD that needs to remember this. The Major Commands need to know this, too. And they do. I went out, eyeball to eyeball, with every Major Command Commander we've got in the U.S. Air Force and told each one, "Sir, the deal is, if you want anything new, you've got to tell us what we're going to stop."

And the BES was the base line we were working with at that point. We presented the MAJCOMs with that BES base line, and they used it to develop their POM inputs. We're able to keep that list constant. The Air Force priority list is now moving into its third cycle with very little movement in it. We know what our priorities are, program by program. However, for '84, we started before we had the President's budget, and we learned some lessons from that.

We found it would be better to wait a little longer and get a better base line. The BES is not the best base line. The President's budget is really the only true base line.

Too much emphasis is being placed on new initiatives in the environment where we already have a stable FYDP and an established ecosystem. So, we went back to our field commanders and said, "Hey, we have too much perturbation. We're holding out too much hope for you. We shouldn't do that to you; it's not fair."

Therefore, when the President's budget is late and there are other considerations, such as PBD 700, you can see how that drags all these changes into the following POM cycle. It's counterproductive. We understand some of that better now this year, as we move into '85. We said there's already a lot in the game this year; so, we're not going to deal with initiatives until we sort out what happens in the President's budget and get a better grip on what the new Fiscal Guidance is going to be.

We must also understand what the December inflation rate is going to do to us and have a better feel for the SARs. That is a much more sophisticated approach. Much more "businesslike" is probably a better word.

Once we get that President's budget, we have our bible. That is our base line, and we will proceed from it. Before we can even think about adding initiatives, we must first clean up our existing programs. Should the kind of fiscal guidance that we expect in the coming President's budget, that budget which we are now fitted up to, be reduced for some reason— and I would hope not—we would have to go into

a significant drill to correct all our programs, deal with fixing up loose ends, cost growth, before dealing with any initiatives.

The commands are involved with us in that process, and I think that's very healthy. They said they wanted to know the problem, and we made them aware. They said they wanted to be part of the solution, and now they are. So, we have a better POM formulation that way.

Now, what I've tried to do here is bring you through some of what our philosophy is, tell you how we make our programmatic decisions and the way time plays in that. We have looked at the structure we have to do that with, and how we expect to use the President's budget as our new base line. I will now handle any questions you might have.

DISCUSSION

General Cunningham: I would like to start with a question that was asked during the break. I showed you the arrows that led the way through the PPBS, from the threat toward the budget. I also made the point that the programmers are involved with planners, right from the start.

Now, the real question is, "Are we in jeopardy of turning the arrows around with that kind of behavior?" You would then have the budget defining the threat.

I tried to make the point in my remarks that the planners have got to do a couple of things. They have to keep their eye on how much force we should have to meet the threat, and yet this planning force must not be way out of line as far as achievability and affordability are concerned. And, from a planner's perspective, that may have some sort of negative effect on the Defense Guidance. But, since we programmers are the recipients of that guidance, you can't blame us for doing everything we can to get that guidance into a form that we can swallow.

I would hasten to add that the planners are not fiscally constrained when they develop the long-range plans. These are plans that exceed the FYDP time frame, and here you want creative, not constrained, thoughts.

Mid-term guidance, within the FYDP, must be somewhat constrained. First, it must be achievable. You must have the technology and the production capacity to get the job done. Second, we must be able to afford it, and I mean as part of a balanced set of prioritized programs, not simply afford it as a single gold-watch entry.

That is why programmers need to be involved in the mid-term guidance. They are the ones who have to buy the groceries and write the checks. Now, believe me, even though we have brought some additional reality into the planning process, we are there to help—not to turn the arrows around and artifically reduce the threat or the creativity of planning.

Question: To what degree should the plan be a programming document?

General Cunningham: I don't think that the plan ought to be a programming document. In fact, I would like all specific directions to achieve certain levels of this and that, etc., out of there. I think that's the kind of thing that makes the plan programmatic. I think the services should be at least acknowledged to have the intelligence to understand the basic direction that we ought to be going and the pace that we should be moving in that direction. The DG can become so specific that it becomes perceived as dictatorial. And it makes people like Admiral Metcalf and me say, "What are we needed for? You know you could put all this into a computer and grind it out right there if you wanted to."

But, fortunately, in this country the military and the civilian government share a high mutual respect. The military is still looked upon as the technical experts on how best to carry out civilian government policy. So, our POM represents our best military judgment in programmatic terms. And we would like to be able to have some latitude to work that. What with two review cycles—both the program review cycle and the budget review cycle—it seems that there's ample time for OSD to make sure we have done our job.

It seems to me it would be a great opportunity to leave the guidance more general in nature and let the services respond in a more purely specific way. If I were looking for the service response and if I accepted the premise that the POM is the expression of the services' military judgment about what we ought to do with the money you've allowed us to proceed with, I would want to provide an environment that allows creative thinking. If you hand us specifics and we just regurgitate them back to you, we have not accomplished much.

Question: How do the panels operate, and how do they respond in programmatic terms when they're faced with increases in requirements, changes in costs, overruns, effects of inflation, that sort of thing? Are they restricted to just operating within a certain amount of TOA, are they fenced in, and do they

have to find the offset within the TOA they have available?

General Cunningham: Obviously, that would be a sorry way to operate. So, we don't do it that way. Certainly, there are some panels that have very little TOA, and we can tell how much TOA each panel has because every program decision package that we have is identified to a given panel.

Some panels, such as a Research and Development Panel, have a lot of TOA and no flex. Everything they've got is a pet rock, gold watch, or sacred cow. So, some guys just can't move.

Therefore, when the Air Force is faced with a reduction in TOA or forced to add a new program without additional TOA, every panel gives that offset effort a shot within the mission area that they are responsible for. And they talk to the Major Commands and PEMs.

Where they simply don't have any flex, they have to say, "What other mission area is affected by this?" And then they go over to other panels and work with panel chairmen from other mission areas. So, when all the panels come forward, you don't just give a pat answer from within one little compartment of one panel. They all interact, they all talk to each other. And the intricacies of that are not so complex that we are unable to comprehend them when they bring them to the Program Review Committee.

This process makes us work across mission areas and with the major commands, and that's important. This open process avoids categorization or establishment of mechanical pigeonholes. That's what you've got to avoid in this business of programming. You can't get mechanical with it. If you do, someone else—a technician, not a programmer—ends up doing the job for you.

We try to work all the panels into our programming process. To that end, when I chaired the Program Review Committee, I realized that the panel chairmen all had problems they would like to share with one another. So, I established a procedure where I met with them during heavier times, at least weekly, and reviewed the bidding with the panel chairmen. We aired concerns, and the PRC as a corporate body suggested solutions.

The second thing I did was to place the senior panel chairman in charge of an informal panel coalition. I didn't even put it on the organizational chart, but it functions, nevertheless, to where that senior panel chairman

meets in frequent sessions with the panel and reviews those problems that may not be evident at the PRC Chairman level. He determines what must be <u>collectively</u> pushed up the ladder. And then he meets periodically with the PRC Chairman and says, "O.K., boss, here's what's going on. This is what's bothering us." And we have had very good results with this informal process. But the point is you've got to work <u>across</u> those panels and compartments.

Oh, I said the word "compartment." That reminds me that all the services have certain compartmentalized programs that are not considered in the normal process of things. Some of us have more than others, and it's an area that should not be—cannot be—ignored in the programming process. There are the highly classified programs that we have got to pay attention to. So, we in the Air Force staff don't let those programs just drift. Our Vice Chief of Staff last year created a body with properly cleared people to deal with those programs in an appropriate fashion and make recommendations to the Chief and the Secretary. I would like to let it rest at that, with the point being made that our highly classified programs are dealt with appropriately in a programmatic way—not held sacred— and are considered when we go looking for offsets.

Question: If the panels are primarily advocates, how do you ever squeeze any offsets out of them?

General Cunningham: That's the job of the PRC Chairman. The panels should, at times, be advocates, and it depends upon the timing when they are. They bring in advocacy from their Major Commands and their PEMs. A classic example is the Strategic Panel. They will tell the Program Review Committee, "This is what the Strategic Air Command needs."

The Strat Panel Chairman has to give his recommendation according to the Major Command he represents. This makes him an advocate right away. But the Strat Panel must then justify all of that to the Program Review Committee. They are called upon to provide alternatives where the funding cannot be achieved within the amount of money that's available to that panel—not just by mission area but from his own panel.

Right there is the subtle transition from the advocate to the programmer: "Corporately now, United States Air Force Strat Panel Chairman, what's your recommendation?"

"Well, sir, I've got to run off, and I'll be back some other time."

No, that's not what he says. Because I say, "Come on, we're going to do business here. What is it? I know at times you have to be an advocate. That's good, but now is the time to take your advocate hat off. We're going to do business." And we get right down to it.

Question: Within the Program Review Committee (which General Cunningham chaired for the last 2 years), it's often felt that the work that's done by the Program Review Committee results in the only good POM. After that, it just gets nibbled and nibbled to death and squeezed and crumped until finally something comes out that the Program Review Committee does not want their name on.

General Cunningham: Well, that really isn't the case. You know it's always the young Turks that like to think they're really doing great work, but, in reality, the closer you are to the fire, the more you can feel the heat. And that Program Review Committee doesn't sit nearly as close to that fire as the Council does. Therefore, things change as they go on up the ladder.

That Program Review Committee cannot be nearly as well informed as the Air Staff Board or the Council, which is made up of three-star-level representatives and is chaired by the Vice Chief of Staff. That Program Review Committee cannot possibly know all the pressures operating on our POM without having the benefit of the Secretarial inputs that are seen more at the Board and Council level. So, those pressures tend to put a little distance between the PRC and the Council. That's the way I'd answer that.

So, I would say to those of you in the system that it's great to see people like Dr. Chu here be part of this dialogue. We all need to do this. Do more. Let's do better. Let's avoid the nif-naf, let the proper level work the micro, and let the leadership deal with the big stuff. That's the answer to that.

Question: What need is there for two reviews?

General Cunningham: I call them "review cycles."We now have a program review and a budget review. The Air Force has proposed to the new Administration that we would like to see one review cycle. Let us put in our POM a little later and then do a combined program and budget review that would result in the President's budget.

Well, most of us have seen a little combat, and nobody likes to fly through a SAM ring twice. Only a fool likes to do that. So, putting the POM in jeopardy twice and giving people the opportunity to take more shots at you than you might possibly be able to avoid motivated us to say, "We want one cycle." One SAM ring, that's what we'd like. And that's an honest answer.

There are some pros to that, as there are cons. The biggest plus is that one review would reduce workload and expense, etc., and that is a significant reduction. I would say by removing one of those cycles we'd probably knock out some of the busywork and add substance to our service POMs. I will not speak for the other services, but the Air Force would have a better POM if we had a little more time to work it.

Now, the President's budget should be our base line. After we receive the President's budget, we need time to get our Major Commands in to review it and work with the panels and the Program Review Committee. Frankly, if we move into this cycle on the schedule that's now published, our commands will be penalized in that we will have to compress the time that the Program Review Committee and the panels will have to consider Major Command requests and comments. If we had a longer cycle, we could do that in a more orderly way, and we could include more analysis in what we do. Analysis takes time. Everyone in that business knows what I'm talking about. If we truly want to put analysis into what we're doing, we can't do it with the two cycles we've got right now.

The other side of the coin, and I don't totally agree with this, is that there is a chance for each service to seek relief from sometimes arbitrary PDM decisions by   ir-facing our concerns during the PBD cycle It's an opportunity for both the services and OSD to do that. So, that goes back to the old fly-through-the-SAM-ring-twice philosophy. I suppose where you stand on this issue depends upon where you sit.

If I were in OSD and had a program I thought was of paramount importance and I had a considerable amount of time and effort invested in it, I would like to have a second shot. If it fell off the cutting table, I'd try to settle it out of court during the program review. I would hope that I could enlist some help from PEMs and others in the services to try to influence the Air Staff to perhaps make an adjustment when they came in with their BES.

If that fell through, I'd want another shot during the budget review, and while OSD and PA&E were riding herd on this and keeping that discipline in there--and that's appreciated--if I were an OSD project officer, I'd

want to have the opportunity to see if I couldn't slip something in there again. I would always want another cycle where I might get my friend up there on the staff, that major or colonel or general officer to try to push it one more time. And I suppose that's part of this fight for resources.

However, I think a single cycle would serve us better in terms of the quality of the POM we would submit. I think the services would properly discipline themselves in a single review cycle. I feel that the Secretary of Defense could be confident in that, and I think that, before too many more years, we'll come to a single cycle.

Question: How can you ensure your program is affordable if you haven't looked into the EPA years? Do we look out there and make an adequate economic assessment to consider what you can really do, or have we built an Extended Planning Annex (EPA) that is going to require 50 percent of the GNP?

General Cunningham: This concerns us a great deal. In fact, we do use our Extended Planning Annex. But it has been significantly improved from the document many of you once worked with. We have come a long way since then, and EPA is now taken very seriously. My predecessor on the Air Staff Board, General Bill Campbell—a truly fine officer, with total integrity—said, "Look, how do you know what route to take if you don't know where you're going? The EPA is where we're going."

He directed our Force Structure Committee to produce an EPA sensitive to a realistic economic environment and in consonance with the policy and planning directed by our Commander in Chief. That EPA was put together before we departed on the '84 POM. The panels, the Program Review Committee, and the Air Staff Board were briefed on that EPA, just to remind us of where we're really going.

So, we pay attention to the EPA while we build our POM. And that isn't just meant to be a pat answer. That's the way we do it.

Now, can we improve that? Yes, there are a couple of things that we're going to have to come to grips with. We should come to grips with varying economic assumptions, especially in the out years of the EPA. We know that the variables tend to converge, to tighten up, as you back in from an EPA 10 years out beyond the POM, and then they all converge on the TOA that exists in the last year of the FYDP. This slop in the economic computation factors lowers our confidence in some of the things you look at in the out years.

We are also a little too complacent when we look at the out years. We too easily accept the philosophy that I really don't have to face those problems for 7 or 10 years. But we must learn to defend our out-year TOA. We can't be soft on that. But I think that how we justify those out-year numbers could be done in a more disciplined way. Continued revisiting of the EPA is important, not just on the front end of the PPBS, when you're really nervous about getting the POM done, but all during the POM build. And we need to compare all the FYDP years, not just the budget year.

This year, we're going to do that. We intend to clean up the out years. We're going to be much more sensitive to the affordability of the programs in the out years and will consider their extension out beyond 8 to 10 years. That, frankly, is part of the evolution of this system. I told Dr. Chu that our Air Force POM was rather well done to the degree that the out years have manpower, O&M, and all the same tails we have in the budget year, and it's all programmatically placed.

I have spent some time talking about stable programs today, and the FYDP is the essence of stable programming, in my view. We've told our Major Air Commands that there isn't much room to move around in the out years. We have ourselves pretty tightly tied down out there. And we've got to watch ourselves. Because a lot of things are going to change between now and then, and we now don't have the big wedges everyone used to put in, just to handle all those "what-ifs." OSD should be aware of that.

Question: When you talked about programming in the presentation, you talked about it as a link between the plan and the budget. That being the case, it was surprising that you were so quick to say that we would like to combine the program review and the budget review.

General Cunningham: Well, you see, programming, in the context that I used it in the presentation, says we've got so much money to work with, we've got so many things we have to do. What's the best way we can make these ends meet? That's not hard to understand. The idea of a program review cycle and *then* a budget review cycle is in a totally different context. As far as I'm concerned, you could call the present system an above-service review cycle A and above-service review cycle B, and I don't see an awful lot of difference between the two.

Now, I realize functionally that a lot of us think that we scrub *programs* in the first

review and the <u>budget</u> in the second and that this process is done differently by different people. If this were really true, we wouldn't see the same issues coming back during both cycles. It would seem feasible that all the different OSD agencies could work in concert during one review. In addition--and this is key--the Air Force has done an exacting job of costing its POM before submitting it. We have programmed our ADP so that our POM builders and budget analysts can use the same data base. They work in parallel throughout the POM build, so that, right from the start of the POM build, the Air Force POM is a costed POM. It does not require additional budget reviews.

Question: How would you respond quickly to a major cut in your TOA?

General Cunningham: Well, if you don't admit there's a problem, you don't work it. And I'm not prepared to admit that that's a problem at this point. I think that Secretary Weinberger isn't going to admit that that's a problem at this point. When OSD identifies a problem in that regard, I assure you, we'll jump right on it. If they don't, we're not going to--as my mother-in-law would say--borrow any trouble. The idea, though, as to how can we do that, would take me back to the point that I made on the need for top-down guidance.

I think that if there were a major cut, we would have a council at the highest Air Force level to identify some of those big-ticket items we could cut. But to put to work people who have only 3--or even 1--percent margin left in their POM, on the task of dealing with a problem that affects 10 percent is ludicrous. So, that is the point of top-down guidance.

And for those of you who formulate or pass on that guidance, you must remember that we must be prepared to go to war. We must believe that if we go, we will win. We soldiers believe this, or we wouldn't be in the business. And this is the essence of deterrence, we in uniform acknowledging that we are ready to go and win. Because the minute the enemy thinks we doubt it, our President will get an ultimatum.

If we go, we're going to go on the backs of our people. So, let's not think that we can do anything by way of absorbing cuts on the backs of those people, the same backs upon which we're going to go to war. You can't do that. You remember what happened to us in 1978

and '79. We lost our NCO leadership, we lost our young engineers, we lost our young pilots, we lost our young submarine commanders.

It's wrong to think that, because we now have a poor economy, you can reduce military pay or people programs. Don't think we have caught up after the mistakes we made in '78 and '79. For example, housing is simply not good enough out there. I commanded a wing where my people were living in 750 units at Nellis Air Force Base, and the average temperature at night for three months of the year was 94° <u>inside</u> the houses. We can't do that to our people.

Don't take the money away from the people, and don't take the money away from our readiness. Flying hours, steaming hours--don't take that. People talk about technology saving money. Well, the most important module in an airplane system, the most productive module, is the one that fits between the control stick and the throttle. So, don't suboptimize what that crew gets because we need to "save money."

There are certain big-ticket items we've got to go after. The big boys have got to make a decision, and say, "Hey, look, guys, we're not going to beat you up on the margin. We are not going to nitpick your people programs to death. We know you need this, this, and this, but here are things we need, and this is what <u>we</u> think you can cut. If you have some better ideas, let's hear them."

But first they must stand up to the simple adage: If you add a program, you must identify what program you are going to kill-- top-down guidance, <u>top-down responsibility</u>. That's what I would propose.

I want to just leave one last thought with you, and I know this group does not need a commercial. But, above all, we should remind ourselves that we have a great country, and we have great leadership, and we have the most noble of purposes: to keep that country free and safe. And, whatever we do, we just cannot spare the horses to that end. So, I hope that we will always be able to work very closely together to get more out of what we have available to us. I very much appreciate the Navy's affording all the services and OSD this opportunity to meet together. This symposium has encouraged a very healthy exchange of ideas. I would offer that this should be done on a periodic basis. Thank you very much.

EXTENDED PLANNING IN THE NAVY AND THE RESOURCE DYNAMICS PROJECT*

by

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ABSTRACT

A new need for better extended range planning is discussed in the light of recent dynamic changes to military resource plans. The difficulties embedded in the current PPBS process and the problems they cause in developing valid plans are reviewed. The ongoing "Resource Dynamics" project is then presented as a means of overcoming the difficulties and providing a timely planning model. The basis of the model is a lagged feedback analysis linking budget "flows" over time to weapon system asset "stocks." The analytic model relationships are based on a significant number of recent statistical analyses. The model flexibility to conduct rapid explorations and sensitivity analyses ("what-ifs") around such explorations is discussed, as is the trade-off between asset quantities and the cost of ownership.

INTRODUCTION

Extended planning and its role in the planning, programming, budgeting system (PPBS) are discussed in three sections: First, its relevance is explored. Second, its difficulties and requirements are outlined. Third, an existing, developing approach toward extended planning is discussed.

A summary of the views presented is that upcoming fiscal dynamics make better planning essential and that the inevitable difficulties can be overcome to a large degree by the method presented. Nonetheless, political realities are discussed as standing in the way of better planning.

An important concept is that the resource allocation process is inherently a complex "closed" system—with feedbacks rife from initial budget formulation through the "end game," where final changes are made—but these feedbacks have been ignored because the PPBS process has been treated as a simple "open" system without feedbacks. The approach discussed for improving the process is a dynamic method that allows for the feedback implications. Because the complexity of the interrelated feedbacks and their lagged effects is
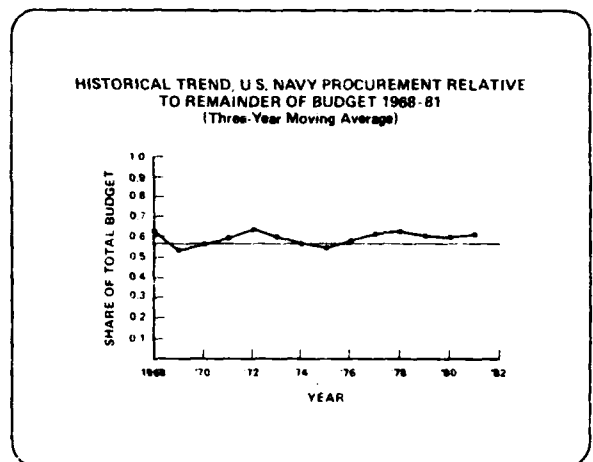
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* This paper was summarized at the conference. In the interests of completeness, it is printed here in its entirety.

too complex for the human mind or even a committee to track with consistency, a computer model incorporating the analytic relationships is required.

IS EXTENDED PLANNING NECESSARY?

In a truly stable world, there is really no overriding need for long-range plans. Fiscal targets and resource allocations, if either unchanging or changing in a "steady state" manner, can be tracked and predicted on the basis of thumb rules that are easily understood and implemented by the human mind. Under stable growth, the Navy budgets for aircraft spare parts, for example, may be safely assumed to require some 25 percent of the new aircraft procurement budget. This aircraft procurement budget, in turn, accounts for about 30 percent of total procurement, which averages 40 percent of the total budget. Such stability has occurred in the past dozen years or so. **Figure 1** shows the stability in the overall budget.

Figure 1

HISTORICAL TREND, U.S. NAVY PROCUREMENT RELATIVE TO REMAINDER OF BUDGET 1968-81
(Three-Year Moving Average)

Under such conditions, resource allocation dynamics are relatively uneventful, and extended planning is both uninteresting and inessential. Without major changes in allocating trends, there are no severe lagged effects of such changes—and the lags in defense resources changes, combined with the magnitude of those changes, are what makes long-range plans essential.

Suppose, for example, that procurement lags (between budgeting and delivery) amount to two to eight years, while for ownership—maintenance, operating, manning—less than a year elapses from budget to expenditure. Then, a major shift in allocations between procurement and ownership has lagged dynamic

effects on resource trends and on force levels. Assume that procurement has historically absorbed 50 percent of a constant budget (inflation-free), with the remaining 50 percent going to ownership costs (manpower, operations, maintenance, etc.). If budgets grow suddenly at a real growth rate of, say, 8 percent, then, for several years the procurement budget can grow at 16 percent. The reason is passage of the three or four years required for the newly procured units to join the active forces. All of the eight percent total addition goes to procurement.

A $100 billion budget--with $50 billion going to procurement suddenly raised to $108 billion--means that procurement can, for a few years, rise to $58 billion, a 16 percent increase. Of course, the dynamics just begin at that point for, as the fleet units do arrive, there is a steady growth in requirements for ownership funds, and that need may coincide with efforts to reduce spending after a long (4-year) growth period--about the average duration of an administration. Reductions in defense spending at that point mean severe reductions in procurement, for ownership funds are difficult to deny, once the systems and manpower are in place. A dynamic fiscal roller coaster evolves.

Under such dynamics, it is no longer realistic to assume (following our previous example) that aircraft spares account for 25 per ent of the aircraft procurement budget. Instead, as procurements first rise, spares budgets do not rise imme tely but grow only as the procured aircraft reach the fleet. Later, as the procurement buildup ends, and procurement budgets fall back to normal, spares require a much larger fraction of the procurement budget, for the fleet has expanded. **Figure 2** applies. Taking 25 percent of the procurement budget for spares yields budgets different from those that result from taking, say, 8 percent of asset values.

Extended planning clearly takes on importance when fiscal trends are dynamic--and present defense spending plans call for such dynamics. Consider **figure 3's** extension of **figure 1.** The recent balance between procurement and ownership is not to continue. The reason is that the expected 7 percent real growth in the defense budgets is unprecedented in recent peacetime planning.

It is false, under such dynamic trends, to fall back on the embedded opinion that long-range plans do not make any difference-- that it is only next year's budget, and maybe the one after that, that count. Such logic works in the stable situation, where long-range effects have no impact on next year's

budget. But, under dynamic conditions, next year's budget may be the first step in a growth process that is not feasible, and should not be taken unless the forces planned can be afforded. The fiscal guidance provided for next year, should be a function of those long-term dynamics, and the first budget must be allocated accordingly.

Figure 2

LONG RANGE PLANNING FOR "SPARES" STATIC vs DYNAMIC

STEADY STATE 'STATIC' LRP NOT CRITICAL

FLEET VALUE (V)

PROCUREMENT (P)

SPARES

GROWTH 'DYNAMIC' LRP IMPORTANT

FLEET VALUE (V)

PROCUREMENT (P)

TIME   SPARES

Figure 3

FUNDING DYNAMICS, U.S. NAVY PROCUREMENT RELATIVE TO REMAINDER OF BUDGET 1968-98
(Three Year Moving Average)

SHARE OF TOTAL BUDGET

1968 '70 '72 '74 '76 '78 '80 '82 '84 '86 '88 '90 '92 '94 '96
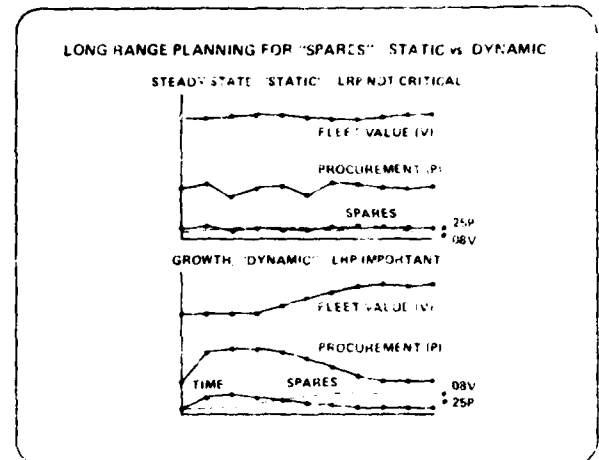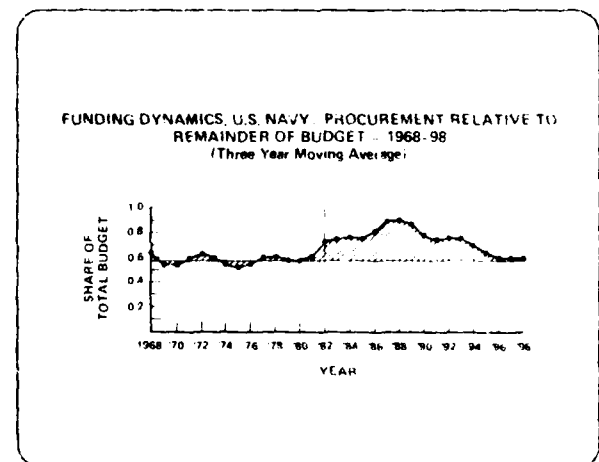
YEAR

It is hypothesized that the current PPBS process does not provide a realistic projection of the extended planning period or, for that matter, of any of the years beyond the budget year. For perspective, even when planned budget growth from 1972 to 1981 was relatively stable (compared with what lies ahead), procurement budgets projected 1 year beyond the budget year (i.e., in year B+1), were revised downward by about 15 percent when they became the actual budgets one year later. Ownership budgets, on the other hand, were

revised upward about 5 percent. Clearly, the procurement-versus-ownership planning process, even under stable budget growth, needs improvement. The need will accelerate in the very near future.

However, even when total budgets remain constant and procurements retain stable fractions of the total, policymakers may want to consider major changes in force mix--for example, to an all-VSTOL tactical air force, or to smaller ships, or to a draft-augmented manpower force. Or economic explorations may be necessary: What if compensation growth must exceed inflation? What if GNP growth is less than planned? What if the inflation norm exceeds expectations? What if cost estimates are optimistic? What if defense industries lose efficiency?

Such questions have dynamic implications through the resource allocation structure. Shifting to a VSTOL fleet causes increases in aircraft maintenance and fuel costs. These increased costs detract, if budgets are constrained, from procurement funds. Also, the smaller aircraft carriers required mean that more carriers could be accumulated over time, but smaller ships are less fuel-efficient and less manpower-efficient (on a per-ton basis); so, associated fuel and manpower budgets must rise accordingly. On the other hand, the increase in manpower intensity at sea means that more maintenance can be done underway, and savings can be made in manpower ashore. Such dynamics do not lend themselves well to "thumb rules," or even to factor manuals which do not change with the resource environment.

Under conditions where overall force growth is anticipated and force mix changes are to be explored, not only must the dynamics be captured, but methods to alter the dynamics rapidly are essential. The current system cannot provide that capability.

What is needed is a system that responds automatically in all necessary dimensions, one that is constructed to increase the budgets for leasing commercial logistic ships, say, when the ratio of Navy combatant to Navy support ships becomes too high, and remembers to increase the mean skill levels of manpower when units become more complex, and alters maintenance needs if fleet age changes because of alterations in such factors as procurement amounts.

Either such dynamics can be reviewed in detail when each policy alternative is considered, or they can be built into a (computerized) model that can be used instantaneously as the inputs are changed. The latter obviously has practical appeal. It is

proposed in the third section. But, first, we should explore briefly some particularly thorny aspects of the current PPBS process, aspects that reinforce the need for a more responsive planning capacity.
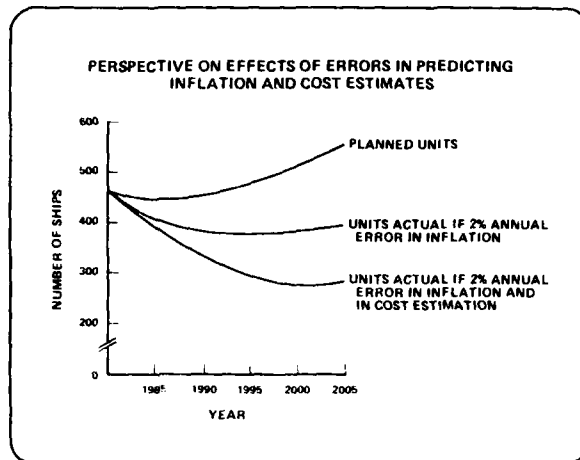
There are some factors in planning that are more than merely complex. Some examples are political factors and human biases. Under our administrative procedures, plans must be based on guidance, and that guidance, at least in part, has strong political influences. For example, the current Administration is counting on economic recovery, complete with productivity increases sufficient to offset renewed inflation. Consequently, plans are developed with the most optimistic assumptions about future inflation rates. It would be politically inconsistent for the Defense Guidance to ask for development of a plan prepared on the basis of inflation rates higher than those projected by the administration.

Asking for a new set of plans for each new set of different inflation rates would be practically impossible under the current PPBS system because of the time and effort involved. But such a set of runs could easily be accomplished with a dynamic computer model-- and would draw much less attention than having hundreds of persons communicating with each other (and the press?) each time a new option is run.

As another thorny example, it is naive to expect planners to program unanticipated growth in unit costs. Yet, it is a historical fact that such cost growth has occurred, year after year, in weapon systems. Clearly, plans that assume unit costs that turn out ultimately to be too low will invalidate the plan, causing procurement quantities to be lowered. That, in turn, raises unit costs again as overhead costs are absorbed by the remaining units.

Again, it may be more acceptable to run a series of runs, on an analytic model, to explore the implications of unanticipated inflation and unplanned cost growth, than to ask for the major compilation of inputs from project managers and sponsors for each iteration. Even small annual changes, if they occur consistently over time, can have major long-term effects. **Figure 4** shows that, in 20 years, unexpected inflation of 2 percent per year, compounded by another 2 percent in unit cost increases per year, reduced a planned fleet of 500 ships to about 300. Historically, these "2 percent" factors have proved to be not far from actual year-to-year errors.

Figure 4

PERSPECTIVE ON EFFECTS OF ERRORS IN PREDICTING
INFLATION AND COST ESTIMATES

PLANNED UNITS

UNITS ACTUAL IF 2% ANNUAL
ERROR IN INFLATION

UNITS ACTUAL IF 2% ANNUAL
ERROR IN INFLATION AND
IN COST ESTIMATION

NUMBER OF SHIPS

YEAR

PROBLEMS AND DIFFICULTIES IN PLANNING

The current PPBS process—whether it be for the budget year, the five-year plan, or the 15-year horizon—entails, in essence, obtaining information on hundreds of program elements and their associated costs, adding them, and then "adjusting" the sum to fit fiscal limits. That in itself is a huge task, involving hundreds of people from project offices, resource sponsors, budget and analysis shops, computer centers, etc.

The inputs to such a process are filtered through numerous briefings and presentations in the management chain. The information is influenced by biases, errors, and political factors. Data are misinterpreted through misunderstandings of, for example, how inflation was used or was supposed to be used. Cost factors can be based on the wrong learning curves or be calculated in the wrong year's dollars. The hundreds of telephone calls—between the various echelons of the managerial chain, from the secretariats, through the service chiefs' staff, to the material commands—are not all consistent. The resulting costs, the quantity projections, the escalation funding needed, can be in error, or misunderstood, or both.

This data "gathering" process is not a one-time event, even for a given year. Changes to guidance and to programs occur even before information requested on previous guidance has been received. Data, when received, may be based on guidance different from what is now assumed by the requester.

Even guidance that is clearly understood and promulgated may be based on overly optimistic projections. Obvious examples are

guidance on inflation that is too low, or fiscal assumptions that are too high. The former leads to underestimated costs, the latter to overestimates of the quantities to be procured.

Perhaps most significant for present purposes, however, is that as these myriad details come together in the PPBS process, the budgets and plans they form run up against the annual budget submission deadline. In a matter of a few days near the end of the programming cycle, the resulting program must be made to fit within Fiscal Guidance, and also to satisfy, as much as possible, the requirements of the sponsors who participate in the final reviewing process. At this point (the "end game"), large changes to cumulative appropriation categories and program allocations may be made.

Such changes affect the assumptions underlying the detailed "gathering" process, which means that the costs and budgets provided lose validity. But there is scarcely time to do another iteration of the hundreds of phone calls, briefings and compilations required to obtain valid inputs—and far more than one iteration would be required. So, the changes are made at an aggregate level, on the basis of intuitive logic and seat-of-the-pants policy. Subsequently, as budget and plans become reality, the acquisition and support processes must adjust to the unrealistic plans. Program cutbacks and stretchouts occur, and the "mismanagement" label is applied once again by critics of defense.

At the point of budget adjustment, another phenomenon occurs—a subtle one, very detrimental to planning. The adjustments made to force the total budget authorizations to fit into Fiscal Guidance are affected from another direction—expenditures.

Economic pressures to reduce or control government spending are usually concentrated on the short term. This means that procurement accounts are affected differently from ownership accounts. Budget authorizations for ships and aircraft, say, are expended only as systems are built. This means that authorized budgets for procurement are outlaid (expended) over several years: Less than 5 percent of the authorization for a new aircraft carrier is actually spent in the budget year, the rest over an 8-year period or so beyond. But the budget authorizations for operations and maintenance are expended almost entirely in the first and second years of the plan.

The process of reducing the planned authorizations of next year's budget, when combined with the politically important goal of

reducing near-term outlays (expenditures), therefore, means that operating and maintenance plans are the ones most likely to be cut. These accounts therefore, become underfunded most severely in the plans. When the budget year rolls around, however, underfunding these accounts is no longer possible; in fact, they must be augmented to levels above those planned. This is much of the reason for the finding that procurement accounts have historically needed to be <u>reduced</u> by almost 15 percent from their projections 1 year earlier, while ownership-related budgets were <u>increased</u> by roughly 5 percent. Proper planning should help avoid these dynamics and their counterproductive effects.

The combined unlikelihood of (1) obtaining the correct inputs in the gathering process, (2) obtaining those inputs without the biases of the information providers and without the biases of those providing the guidance, and (3) avoiding end game changes that would alter the inputs if the necessary feedback effects were reflected, lead to suggesting that the PPBS process be at least supplemented by another system. In more theoretical terms, the current process, which is treated as an "open" system (wherein inputs are not affected by the outputs) should be replaced by a "closed" or feedback system, wherein the inputs provide outputs, which alter the inputs, which affect outputs, etc.

If my watch is set at the factory with certain inputs, it will provide me the time as an output. But, eventually ("in the long term"), the time will be incorrect. My watch alone is an "open" system. But my watch and I together are a "closed" system. I check its output against other calibrated systems and reset its inputs. In the current PPBS process, resetting the inputs after the end game has adjusted resource allocations would mean getting the hundreds of pieces of information all over again. Obviously, that is not feasible. It follows that the current PPBS process is not a realistic way to develop extended plans.

An "analytic" planning approach is proposed. Vital information embedded in those detailed inputs must be translated into analytic models, which are more easily used in conducting the necessary explorations required by policy analysts. It is suggested that this translation of detail into analytic trends, obviously less accurate in the budget year itself, is far more accurate in the long term, and perhaps more accurate as soon as two years in the future.

But what is meant by "analytic trends" in the PPBS process? Let us consider an analogy from the field of cost estimating. In estimating the cost of a new weapon system, cost analysts use detailed engineering data if the system has been designed and development has progressed through the prototype stage. At that point, the details of engineering and production labor and material, of profit and overhead rates, of system integration tasks, etc., are known; they can be compiled for use in determining next year's production costs.

But when analysts are looking to determine how much a system will cost before it has been designed and before production schedules have been set, such a detailed approach is not possible. Instead, analysts must rely on "parametric" relationships, derived from myriad <u>past</u> data, to explore the likely costs of alternative future systems. In such "parametric estimates," an aircraft's unit cost is made a function of its weight, acceleration, speed, and other performance requirements.

An analogous concept is proposed to develop extended plans in resource allocation. The detailed "gathering" process, analogous to the detailed "engineering cost estimates," is essential for the budget year. But the farther one looks ahead, the more the uncertainties in plans. The detailed process should yield logically to a more parametric (or analytic) approach.

Looked at from a different perspective, long-range planning is a <u>policy</u> matter as opposed to a managerial process, yet the PPBS system is very much a <u>managerial</u> process. Inputs are compiled from the detailed managerial system—the project managers, the budgeteers, the computer systems—and the inputs are combined in a managerial accounting process wherein the individual data elements are added up to determine the long-range plan.

A policymaker determines the guidelines under which each project is to be managed, or whether the project is to be undertaken at all. A good manager performs efficiently the tasks required under the policy, determining needs and implementing schedules.

Different methods are useful to managers and to policymakers. The accounting, controlling, and optimizational techniques suitable in a well defined managerial problem are generally different from the analytic tools needed by the policymaker, who has to choose between alternatives in an ill-defined future. This usually means using techniques which allow exploring many options under many different scenarios. It means focusing on the "first order effects," the major factors in a policy problem—and sacrificing accuracy

(usually false accuracy), for broad per-
spective. It means reducing drastically the
volume of data inputs, so that larger numbers
of policy options and scenarios can be
explored.

All of this means, in turn, that the
process must be replaced by a more analytic,
feedback-oriented approach, to which we now
turn.

THE SYSTEM DYNAMICS APPROACH AND THE NAVY RESOURCE DYNAMICS APPLICATION

Fortunately, there exists a well estab-
lished framework for conducting policy analy-
ses in long-range military planning. The tech-
nique of "System Dynamics," developed over the
past 25 years at MIT under the direction of
Jay W. Forrester (references 1 and 2), pro-
vides the general theories. With the texts,
computer languages, and even professional
experts now available, it is possible to apply
these techniques to a specific policy problem.
At George Washington University, such an ap-
plication is in process to consider the U.S.
Navy's resources allocation problem. The
project is called "Navy Resource Dynamics"
(NAVRESDYN).

NAVRESDYN is a computer-based analytic
model, which interrelates important variables
through parametric relationships developed on
the basis of detailed statistical analyses.
The model is truly dynamic, meaning that the
feedbacks are such that not only are the model
parameters time-dependent, but the parameters
change as the policy variables themselves
change. Thus, the maintenance parameters, for
example, change as the fleet age changes. The
maintenance cost of F-14 aircraft will thus
increase as the average age of the F-14 inven-
tory increases. This is an example of a more
dynamic interaction than, say, a time-varying
parameter such as the inflation rate, which
may grow at six percent per year no matter
what the other variables (besides time) are
doing.

In a dynamic model the choice of control
variables (such as budget flows) in one time
period is dependent on their values in another
period, and vice versa. In such a "closed
system" approach, the model dynamics are far
more complex--but also more comprehensive--
than in an "open system."

With an open system, one might apply a
maintenance "factor" to the value of aircraft
to obtain the maintenance budget as an output.
A similar mathematical operation would be
applied for the following time period, etc.
But, in a dynamic (feedback) model, the main-
tenance cost factors would automatically be
affected by aircraft procurement and aircraft
age, and trade-offs would be made to determine
whether it would be better to inactivate more
old aircraft, which would reduce maintenance,
which would increase funds available for new
procurement, which would reduce average air-
craft age and further lower maintenance costs.

Modeling such dynamics is difficult, but
feasible--and once they are modeled, one can
rapidly study the policy implications of the
trade-offs in resource allocations. Feedback
models such as Resource Dynamics can then rely
on sensitivity analyses--wherein trial solu-
tions are compared--to choose between resource
policy options. This sensitivity analysis
becomes a form of "optimization," as the al-
ternative options are reviewed, and the most
desired one (the optimum) is chosen.

The following includes a brief descrip-
tion of the current NAVRESDYN model and logic.
Allocation, in the broadest sense, must be
made between acquisition and ownership.
Ownership involves operating and supporting
the Navy's weapon assets. Yet the cost of
ownership of Navy systems cannot be treated
independently of the Navy's cost of acqui-
sition, naval readiness, or operating/
maintenance/manning policies. There is ac-
cordingly, need for a comprehensive meth-
odology, directed toward developing a series
of economic models, to better understand and
therefore improve the Navy's resource al-
location process. The long-term effects of
today's policy decisions can become better
understood through such methodology.

In the past 20 years, while the real
purchasing power of the Navy budgets has held
essentially constant, both unit size and unit
complexity have increased. Ships have grown in
size and complexity (because of technology,
automation, etc.) almost 6 percent per year.
Aircraft have grown in weight and complexity
(skills, displays, automation) at an even
higher rate. Unless budgets grow as fast as
unit cost, force levels must decline. Rises in
unit costs will be hard to reverse for they
reflect, at least partly, efficiencies in the
evolution of weapon systems. Just as air-
liners, trucks, and cargo ships have become
larger and more complex for economic reasons,
so we might expect weapon systems to reflect
the same evolutionary pressure.

With increased size comes more efficient
production through economic returns to scale.
Automation, while increasing complexity,
yields manpower savings through reduced crew
requirements. Larger units cost less per ton
to maintain, overhaul, and operate. Therefore,
size and complexity will probably continue to

grow despite the possible advantages of dispersion and deployment associated with smaller units.

The NAVRESDYN approach involves determining a historic relationship between overall Navy ownership budgets (or fund flows) and the stock of weapon assets in the inventory demanding those flows. These historical relationships can help predict future ownership needs, and this can be accomplished independently of detailed project-by-project summation.

Any budget plan can be separated into two major categories--funds committed and funds not committed. Broadly defined, committed resources are those required to "own" existing forces. Personnel compensation, fleet maintenance, and facility repair, are examples. To estimate the committed resources in future budgets, one must define and understand the relationships between the committed portions of the budget and the force levels that require the commitments. These committed resources are projected forward, and then uncommitted resources for each future period are estimated as the difference between projected fiscal levels (budgets) and the committed resource needs. This starting point can be defined as "determining the cost of ownership," as it acknowledges the need to operate and maintain existing systems at some reasonable level of readiness.

Determining and predicting such ownership costs is not a trivial task. It requires developing an understanding for the total Navy resource allocation process, including the effects of changes in assets, support of those assets, and the resulting readiness, operating, maintenance, and manpower policies and their impact on costs and readiness, and even systematic programming errors. Intelligent planning requires analyzing past resource and readiness trends, developing relationships based on those past trends, and incorporating them into the dynamic mode to influence future resource allocations intelligently.

The basic premises for the Resource Dynamics approach are: (1) that funding available over the planning horizon must be allocated to research and development (R&D), to procurement, or to ownership; (2) that accumulated assets determine required ownership costs; (3) that required ownership costs can be influenced through R&D-funded-and-designed improvements, (e.g., decreased failure rates, increased fuel efficiencies); (4) R&D and procurement are the residual annual fundings that remain after necessary ownership costs are funded (required only if budgets are constrained by some upper limit); and (5) force

readiness deteriorates if required ownership costs are not fully funded.

Stated another way (and referring to figure 5), the quantity and quality of asset stocks determine ownership fund flow requirements. Quantity depends largely on buys and retirements; quality can be influenced by R&D expenditures.

The model can be run in either of two modes: "fiscal constraint" or "force level." In the fiscal constraint mode, ownership costs plus R&D when deducted from the (constrained) fiscal level provided, determine the procurement residuals that augment the asset stocks. Procurements, as they accumulate, lead to asset levels, which determine ownership requirements; these in turn, lead to future procurements, given future fiscal constraints.

This circularity can be broken in one of two ways: (1) Either more funding is provided, so that both acquisition and support can increase, or (2) support can be under-funded so that acquisition can accelerate. But the latter leads to reduced readiness of the required forces, to larger force levels, and, therefore, to greater ownership requirements downstream. The circularity is illustrated in figure 5.

Figure 5

SIMPLIFIED RESOURCE DYNAMICS STRUCTURE
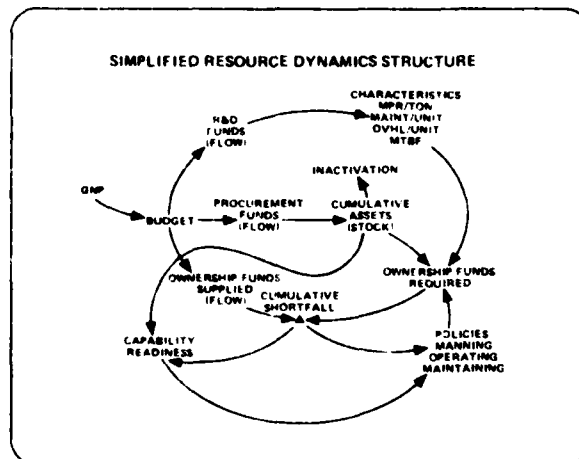
If the model is run in the "force level" mode, wherein procurements are not residuals but are, rather, predetermined by fleet requirements, then the budget, instead of being an input, as it is under the fiscal constraint mode, becomes an output of the model. It is the sum of acquisition requirements plus ownership requirements.

The "stocks-flows" logic embedded in **figure 5** is fundametal to the study of systems, and the Navy's resource allocation system is no exception. The figure shows one (annual) iteration, which can be described through a system of (difference) equations wherein the system states, controls, and outputs at one point in time (t), are dependent on only: (1) its states one time period earlier (t-1); (2) the controls (budgets) applied between the two time points; (3) the parameters (or constraints) of the system.

In the figure, the "states" of the system are the asset stock and the cumulated ownership shortfall; the "controls" are the inactivation rate and the budget flows (which evolve from the operating/maintenance/manning policies); the "parameters" are the force characteristics plus all the constants used in the relationships between variables (for each arrow in the figure is a relationship which must be derived statistically).

The "force characteristics" are determined by numerous ownership costs, such as maintenance costs per unit, manpower requirements per ton, fuel use per ton per hour, overhaul costs per unit, etc., most of which can be affected through proper design improvements, meaning increases in R&D expenditures.

Finally, the "output" shown is the number of ships and the readiness decay measure, though any variable can be printed as an "output." Certainly, budget flows are all candidates.

Some highly simplified sample "difference equations" representing this figure are the mathematical equivalents of the following statements:

- The assets (A) at time T equal the assets at T-1 plus the procurement flow (P) minus the inactivation rate (I)

$$A(T) = A(T-1) + P(T-1,T) - I(T-1,T)$$

- Maintenance (M) at time T equals assets at T times the maintenance parameter (MP)

$$M(T) = A(T) \times MP$$

- The R&D flow (RD) equals a fixed fraction (FF) of the budget (B)

$$RD(T-1T) = FF \times B(T-1)$$

- Cumulative ownership shortfall (COS) at time T equals its value at T-1,

plus ownership funds required (OFR) since T-1, minus ownership funds supplied (OFS) since T-1

$$COS(T) = COS(T-1) + OFR (T-1,T) - OFS(T-1,T)$$

The present version of the NAVRESDYN model has over 1,000 such equations, though each is, on average, more complex than these samples.

The set of difference equations represents a single time period, and the computer iterates the model through as many time periods as required, calculating the value of all states, controls, parameters, and outputs at the first time point, then the second, etc., until the entire time horizon is "simulated."

Of course, figure 5 gives an oversimplified look at the model. "Assets" are, even in the simplest form of NAVRESDYN, split into ships and aircraft assets, and each of those is disaggregated by age category--30-year-old ships, 29-year-old, etc. The "ownership" flow shown is made up of ship maintenance, ship operations, ship manpower, and 10 or so miscellaneous acounts. Similarly for aircraft. Even some of these, depending on their importance, are further analyzed and disaggregated. Ship maintenance is split into four subcategories: (depot, intermediate, and organizational maintenance costs and replenishment spares). In all cases, the disaggregation is consistent with available data and accounting records.

This simple model becomes complex yet still manageable, given computers and database management systems, if the following considerations are included: (1) disaggregation of force assets into increasingly specific components, such as aircraft into system types (tactical, warning, transport, etc.) and ships into categories (carriers, submarines, logistic, etc.); (2) ownership policy changes (maintenance policy allowing more backlogs, manning at 80 percent, 90 percent, etc.) and their effects on resource allocations; (3) incorporation of systematic and predictable errors influencing resource allocations (underestimating inflation, overestimating GNP growth, etc.); (4) analysis of the effects of different resource allocation schemes on "readiness."

A note on the "readiness" direction of the research is appropriate. Readiness measures are considered in the form of readiness "indicators"--overhaul backlogs, spare parts shortfalls, manpower skill and quantity factors, steaming hours per ship, etc. Policymakers involved in budget allocations can

influence success in combat basically through control of resources affecting such indicators. A task group commander must ultimately be sure his forces are "ready" in the more traditional sense of operation or unit readiness, but he will have an easier time if policy level resource sponsors have provided adequate levels of spares, training time, manpower, maintenance, etc., to the task group in the first place. The hypothesis is that the fleet will have higher material readiness, personnel readiness, mission readiness, operational readiness, and fewer casualties, if resources allocators have monitored the "readiness indicators" and made intelligent allocations accordingly.
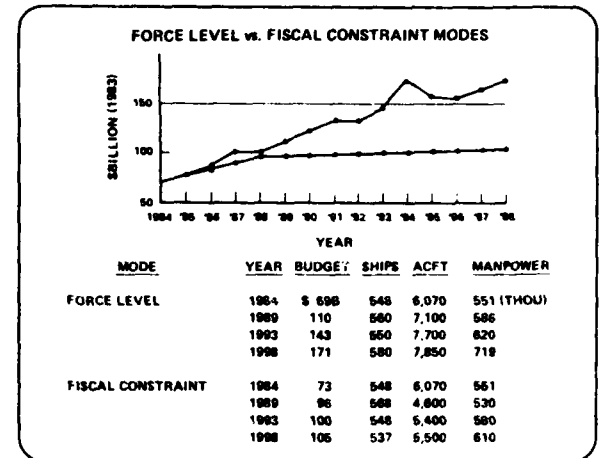
Having a model that incorporates such considerations, one can "execute" a program using base-case assumptions. **Figure 6** provides a comparison of the fiscally constrained mode and the force level mode, in which the types of ships and aircraft required are given. The fiscal case determines how many ships and aircraft can be procured within budgets after the ownership costs are paid. The requirements case determines how much it will cost to buy and own the units planned. Any specific run, of course, requires certain inputs in addition to those built into the model. The fiscal mode requires knowing future budget growth assumptions and the procurement plans, from which trends in the characteristics of future systems bought with available funds are derived. The force level mode requires conversion of the procurement plans themselves into direct inputs. In either case, many options concerning ownership policies and assumptions can be tailored, and model parameters can be changed.

In an ideal planning case, the budget outputs of the force level mode would match the budget constraints of the fiscal mode. If they do not match, however, having both allows policymakers to consider whether to: (1) change fiscal guidance, (2) change procurement plans or (3) ignore the problem now and adjust later by asking for more funds, cutting procurements, or both. Historically, the third policy has resulted from default, because the fiscal-versus-requirement comparison has not been available.

Given a base case, one can conduct various "what if" exercises. These come in various categories, including:

(1) Budget changes
(2) Price inflation changes
(3) Changes to ship and aircraft characteristics
(4) Changes to production efficiencies
(5) Changes in the force mix

Figure 6

FORCE LEVEL vs. FISCAL CONSTRAINT MODES

MODE	YEAR	BUDGET	SHIPS	ACFT	MANPOWER
FORCE LEVEL	1984	$ 698	548	6,070	551 (THOU)
	1989	110	560	7,100	586
	1993	143	550	7,700	620
	1998	171	580	7,850	718
FISCAL CONSTRAINT	1984	73	548	6,070	551
	1989	96	568	4,600	530
	1993	100	548	5,400	580
	1998	106	537	5,500	610

By way of demonstration, **figure 7** provides a hypothetical fiscally constrained case in graphic form. **Figures 8 through 12** provide perspective on changes in selected variables relative to their base-case values. **Figure 9** shows a slightly more comprehensive sample output for a force mix "what if" example. These should be discussed, at last in broad detail.

The base case (**figure 7**) shows ship, aircraft, fleet value (ship and aircraft valued at cost), and required manpower projections, under a fiscally constrained case. In this run, future ship and aircraft unit costs have been assumed to grow at historic rates (5 to 7 percent) and the Navy budget grows, in constant dollars, as shown: 2 percent in 1981, 15 percent in 1982, 7 percent in 1983, etc. Several factors are noteworthy:

Figure 7

SHIPS, AIRCRAFT AND MANPOWER BASE CASE
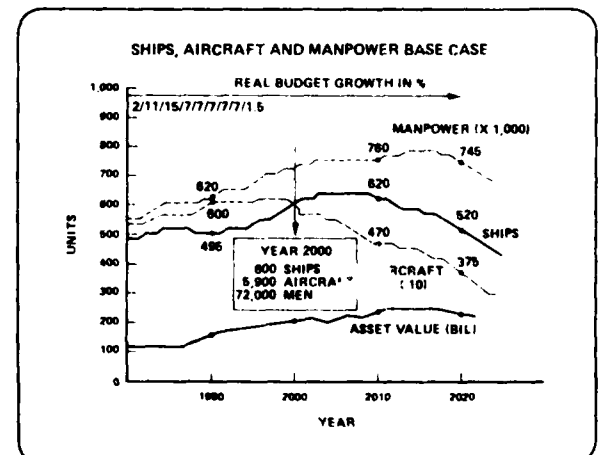
First, both ship and aircraft unit counts lag budget growth. This is consistent with the previous discussion on lags, with aircraft taking some 2 to 3 years from budget to delivery, and ships up to 8 years.

Second, with ship and aircraft procurement costs growing at 5 to 7 percent and budgets eventually growing by only 1.5 percent, units must eventually decline. Note, however, that value continues to rise; each unit is far more "valuable" than the unit being replaced.

Third, aircraft units, lasting only 15 years or so, must decline much sooner than ships, which last 30 years.

Fourth, the lag between budget growth decline and unit count decline is longer than the normal budget-to-delivery lag. The reason is that, within the model, attempts to avoid fleet decline in numbers feed back as a policy to retain units beyond their normal service life. But that practice ages the fleet and eventually leads to higher maintenance costs and accelerated declines.

Fifth, manpower continues to increase beyond the decline in fleet units, because fleet value continues to grow.

Finally, the eventual manpower decline occurs because of manpower efficiencies associated with the more costly--but more automated--units and because of the movement of more of the budget toward ownership accounts, as a consequence of the increasing value of the fleet; fleet asset growth is therefore slowed.

With this base case for reference, various excursions can be explored. In figures 8 and 9, budget sensitivity questions are posed.

Figure 8 asks, "What if budgets grow 1 percent less, each year than planned?" There, it is seen that (after a considerable lag), the number of ship units declines by 8 percent in the year 2000, compared with the base case, and 15 percent in 2010, etc.

In figure 9, only one budget is changed; that is, the 1982 growth rate is 7 percent instead of 15 percent. This has a major impact, since every year's budget thereafter must grow from this lower base. Here a more comprehensive output is provided to show some representative outputs available.

In figure 10, relative price changes are explored. Here, the question is "What if military compensation must grow 4 percent faster than inflation?" instead of the 2 percent assumed in the base case. A 7 percent decline in ships for the year 2000 occurs as the budget for pay grows by 30 percent, and less remains for procurement.

Figure 8

SHIP REDUCTIONS ASSOCIATED WITH BUDGETS 1% LESS THAN PLANNED BASE

Figure 9

RELATIVE ASSETS & FUNDING, FOR '82 GROWTH OF 15% vs 7% (DOLLARS IN APPROXIMATE 1982 S.

Figure 10

WHAT IF MANPOWER COMPENSATION MUST RISE 4% ANNUALLY RELATIVE TO NORM (BASE HAS 2%) (COSTS IN CONSTANT 79 $)
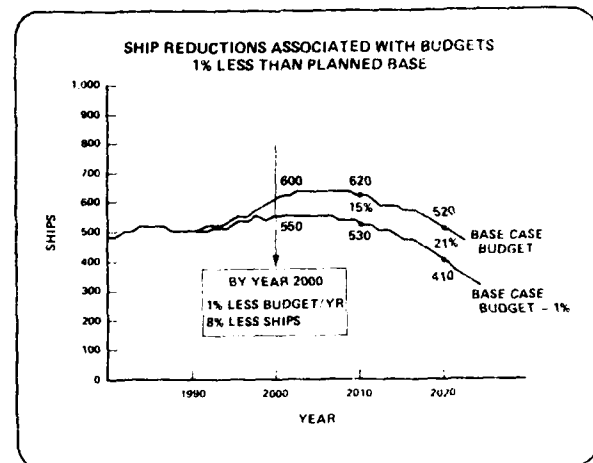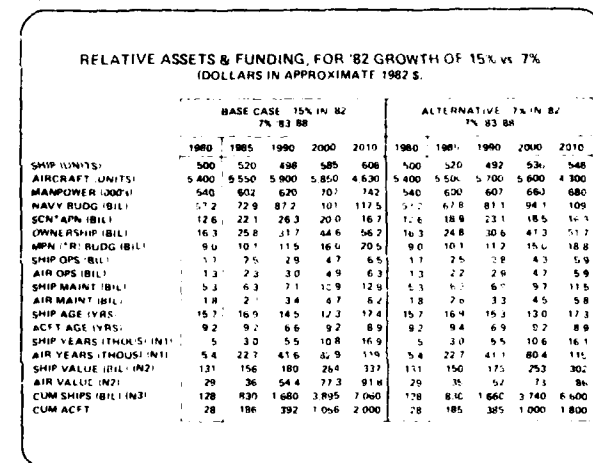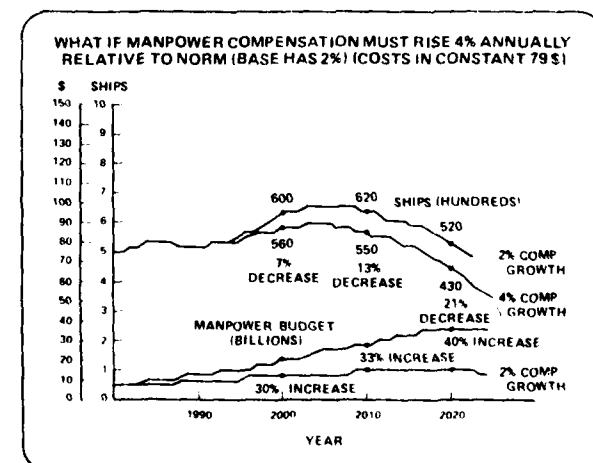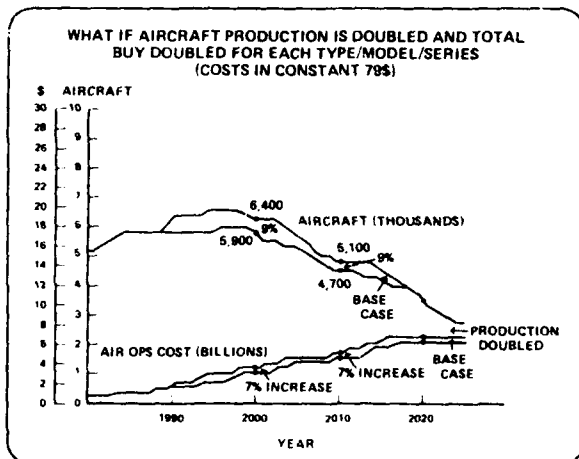
In **figure 11**, aircraft production rates are initially doubled, causing production efficiencies to occur, which provide more aircraft relative to ships, and eventually cause aircraft production to be reduced to levels merging with the base case about the year 2020. This case is intended to show the effects of increased efficiency in production processes.

Figure 11

WHAT IF AIRCRAFT PRODUCTION IS DOUBLED AND TOTAL
BUY DOUBLED FOR EACH TYPE/MODEL/SERIES
(COSTS IN CONSTANT 79$)

Finally, **figure 12** shows the "What if the force mix is changed?" example, where a total shift to a VSTOL tactical air force is programmed. This case is interesting, because the VSTOL force can operate from smaller, less costly carriers, and the Navy can, presumably, save money which can be invested in more ships. In actuality, however, a counter-intuitive decline in numbers takes place. There are several reasons. First, VSTOL aircraft cost more per unit for equivalent capability. Second, their maintenance costs (compare the "aircraft maintenance" budgets) are considerably higher. Third, the smaller ships are less efficient in manpower and fuel, on a per-ton basis; consequently, proportionately more money is required for ownership. Further, VSTOL-capable ships other than aircraft carriers cost more than their non-VSTOL-capable predecessors. These types of results, natural in feedback models, are unlikely to be incorporated in a static (open system) approach to planning.

STATISTICAL ANALYSES SUPPORTING THE MODEL

Model outputs are, of course, largely dependent on the accuracy of model parameters and on the functional forms relating the variables. Of the many statistical explorations conducted to date, only a handful of examples can be cited here. Typically, a crude

statistical analysis is performed to obtain model relationships, and, after the model is tested for the sensitivity of the relevant parameters, more detailed statistical studies are conducted on the parameters that are most sensitive.

Figure 12

VSTOL CASE "20 YEARS LATER"
(DOLLARS IN CONSTANT 79$)

	BASE CASE	VSTOL TACAIR
SHIPS:	600	550
AIRCRAFT:	5,900	5,500
MANPOWER	720,000	680,000
O&S BUDGET	$ 36.7B	$ 38.5B
SHIP OPS:	$ 4.0B	$ 3.9B
AIR OPS:	$ 4.1B	$ 4.2B
ACFT MAINTENANCE	$ 4.0B	$ 5.7B
VALUE OF SHIPS	$ 244B	$ 243B
VALUE OF ACFT.	$ 65B	$ 60.3B
AGE OF AVE SHIP:	12.2 YRS	12.5 YRS
AGE OF AVE ACFT:	9.2 YRS	9.5 YRS
AVE UNIT VALUE, SHIPS:	$ 410M	$ 410M
AVE UNIT VALUE, ACFT.	$ 16.0M	$ 15.8M
SHIP-YRS TO DATE (000's)	10.8	10.5
ACFT-YRS TO DATE (000's)	83.6	82.1

Regarding fleet units and their characteristics, analyses have been conducted into trends in size in cost per ton, trends in asset levels on crew requirements per dollar of asset value, generating capacity per unit of propulsion power, and carrying capacity per ton.

For example, over the past 20 years, ships have grown about 3 percent per year in size and 2.7 percent in cost per ton (constant dollars). Aircraft unit costs have grown about 7 percent per year (reference 4). Ship costs per ton have approximately matched the growth in generating capacity per ton (reference 6). Afloat manpower per dollar of asset value has declined some 3 percent per year (reference 5) and, if one inspects budget trends, this has resulted in <u>lower</u> fractions going to military pay—from 23 percent in 1972 to only 14 percent in 1982—contrary to the popular opinion that manpower costs are growing exorbitantly.

An analysis of the last 1,250 ships built shows that some 25 percent of the units undergo major conversions, and when they are converted, some 50 percent of their initial value must be budgeted to accomplish the conversion (reference 7). Such data is incorporated into the model to allow for adjustment of fleet age (units are renovated when converted) and changes in manpower and complexity factors.

The ownership costs associated with fleet units have been analyzed. Aircraft maintenance

costs are some 6 percent of aircraft as^{et} value overall but must be disaggregated into fixed-wing, VSTOL, and rotary-wing. Aircraft maintenance varies only slightly with the age of the aircraft series, largely because the aircraft modernization program keeps aircraft very near their new condition (reference 9). Aircraft operating costs are determined as functions of aircraft weight and thrust/weight ratios (reference 8). Ship maintenance is determined to require overall about 4 percent of ship value and, of course, varies from type to type (reference 10). Ship fuel costs are determined to rise with horsepower, tonnage, and generating capacity, but a 10 percent increase in each leads to only 3 percent, 2 percent, and 1 percent increases in fuel (i.e., elasticities are 0.3, 0.2, and 0.1 respectively). (See reference 13.) Analysis of aircraft fuel use required division of aircraft into three categories (reference 8). Manpower costs ashore are inversely related to those at sea, with 20 percent elasticity. This means that each 1,000-man reduction at sea has been offset by a 200-man increase ashore-- still a saving, however. The manpower ashore factors were made more explicit by a related analysis (reference 3), typical of the "start rough, then smooth" statistical philosophy of the Resource Dynamics project.

Other analyses included studies of various budget categories not directly associated with ships or aircraft (reference 12), such as fractions of the budget required for base operating support, for medical support, for geophysical explorations, and for about 25 other such categories. Trends in skill levels by ship type ongoing in pay per person by ship type (reference 11) become incorporated. Leaseback budgets, the funding required to lease civilian-manned logistic ships, are increased with declines in the ratio of Navy logistic tonnage to combat tonnage (reference 14).

CONCLUSION

The statistical analyses, when combined with the logic of stocks and flows in a feedback system model, provide one means of at least partly overcoming the political realities and budget complexities of the PPBS process. A Resource Dynamics approach, with historical knowledge built into a computer model, makes possible realistic projections of either the costs of a desired fleet or projections of a likely fleet given resource constraints. Rapid "what if" excursions around the resulting base cases make realistic "policy analysis" feasible, within available time frames and without involving too many people--a fact which makes it politically

possible to explore even sensitive options. As the model improves its disaggregation process, more accuracy will result. As readiness decay factors are related to shortfalls in manpower, maintenance, and operations funding, trade-offs between procurement and readiness can be explored. The model, already proving useful, should become more so.

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TOWARD PPBS II: MISSION BUDGETING NOTIONS ON IMPROVING THE MANAGING OF RESOURCES

by

Mr. Wayne M. Allen
Director, Cost Analysis
Comptroller of the Army

The text of Mr. Allen's talk is not available for publication.

AIR FORCE WIDE MISSION AREA ANALYSIS: A NEW TOOL FOR PPBS

by

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(AF/XOXIM)

OVERVIEW

Few people really realize the scope and complexity of building a Program Objective Memorandum (POM) or budget for one of the military services. However, everyone has at least one "pet program" which they can discuss in-depth, and they can argue eloquently for their position on expansion, termination, acceleration or drawdown. Beyond this "pet program" there's rarely any thought to the myriad areas which must also be considered: R&D, base operations, military construction, force sizing, support requirements, etc. Not only must you consider these factors, but you also have to prioritize them from most dear to least dear. Available dollars are limited, and you have to make these tough decisions if you are to stay within your budget, keep your forces operating, and maximize combat capability.

How would you prioritize the hundreds of programs that constitute a five-year defense plan for a service? What criteria would you use--cost, current risk of warfare, deterrent value, technological risk, or contribution to warfighting capability (certainly an important factor)? And, if warfighting contribution is primary, how would you assess it--now and in the future? To answer this last question and assist in the decision-making process, the Air Force has developed, expanded, and refined a tool called Mission Area Analysis.

Air Force Wide Mission Area Analysis (AFWMAA) is a macro systems analysis used to measure USAF combat capability in four major mission areas: strategic offense, strategic defense, force projection, and theater warfare. The process compares friendly and enemy forces over the next 15 years, assesses contributions of individual programs, identifies chokepoints and limitations in the system, and prioritizes needs to improve capabilities.

How does it work? First, last, and always, AFWMAA is a logic process. Warfighting assessments are based on evaluation of three essential elements: (1) Objectives: What do we want to do? (2) Threat: Who is the enemy and what are his capabilities? and (3) Capabilities: What are our resources in terms of both quantity and quality? In a nutshell these three factors are the essence of Mission Area Analysis program.

The distinguishing factor in AFWMAA its emphasis on the "total system." It [looks] at both force structure and the support [func]tions necessary to produce real combat [capa]bility. For example, if you have a ramp [full] of fighters but do not have adequate munit[ions,] spare parts, fuel, or C3, you really do [not] have an effective fighting force.

A major by-product of this process [is] elim[in]ation of double counting. By looking [at] global scenarios we quickly identify cr[oss-] targeting or over-commitment of resources. [For] example, aerial refueling is used by st[ra]tegic, tactical, and airlift forces. Pla[ced] in isolation, these forces could easily ass[ume] unlimited aerial refueling support. Howe[ver,] in the global sense, AFWMAA will apply [re]sources to the highest priority missions [and] then degrade capability when the resource [no] longer exists.

Perhaps the most important aspect [of] AFWMAA is its role as an "honest broke[r."] Unlike advocates who often "sell" weapon s[ys]tems and support functions, the AFWMAA a[na]lysts are charged to call a spade a spade-[-to] do an honest evaluation and let the chips f[all] where they may. These assessments are provi[ded] directly to the Air Force Board Structure [for] use in prioritizing and funding programs.

Our non-advocacy evaluations have a c[om]mon measure of merit across all mission are[as] and are invaluable to the Board Structure [in] their prioritization decisions.

METHODOLOGY

Air Force Wide Mission Area Analy[sis] (AFWMAA) is a computer model based on a hi[er]archical, multi-objective tree structu[re.] Three distinct actions are involved in [the] computational process:

(1) Establishing and prioritizing the [ob]jective. Threat data is matched w[ith] tasks to be accomplished.

(2) Computing capability of various wea[pon] systems to perform the required tas[k.] This includes both quantity and qu[al]ity factors.

(3) Matching available capability to p[ri]oritized taskings. The output id[en]tifies shortfalls, limitations, [and] sensitivities.

The hardest part of the entire process is developing and articulating objectives in a logical format. The Defense Guidance provides the foundation for what has to be done. However, the guidance is usually cast in very broad or abstract terms. For example, statements such as "Deter aggression..." or "Inflict unacceptable level of damage..." offer few clues to the number of aircraft, missiles, munitions, etc. required to carry out the guidance. To convert the general guidance to specific tasks, we work with the Commander's staff charged with a specific mission (e.g., CINCSAC for strategic offense, etc.). With the Commander's staff, we look at possible scenarios, such as full generation and day-to-day alert status. From there, we progress to possible conditions of war and broad target types, working down to specific numbers of targets.

At each level of this multi-objective tree, the Commander's staff assigns relative importance for achieving each task. At the bottom of the tree, we then have a very large list of tasks, in priority order, which must be accomplished to meet the original guidance. Specific targets identified in this process may be only a fraction of the total target base. But it is the number which, in the Commander's estimation, must be destroyed to satisfy the Defense Guidance with a "reasonable assurance of success." [SLIDE 1] outlines the flow of this process.

Slide 1
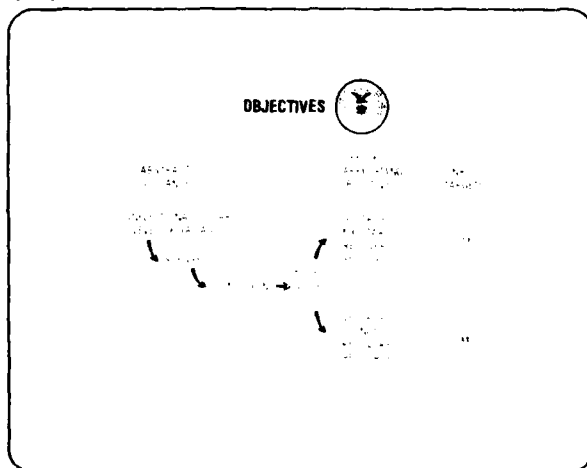
Once objectives have been established, we begin the capability computations. In this phase, we look at all systems available to

perform the objective tasks. For example, in the Strategic Offense mission area, we would look at bombers (B-52, B-1, FB-111) and missiles (Minuteman II/III, MX, ALCM, SLBM). For each of these systems we then evaluate all the factors that determine the effectiveness of a system (force size, survivability, penetration, probability, and weapon effectiveness, as well as logistics, aerial refueling, C3, and other necessary support. Many of these factors (such as C3) already have extensive models; these are incorporated into the major models. In short, we compute the number of sorties available from each system, the quality (damage expectancy) of those sorties, and the support necessary to operate the sortie.

The final step matches capability to tasks. At this point, we have a prioritized list of tasks to accomplish and a large number of sorties available. Using computer models to keep track of resources used and targets destroyed, we begin assigning the most capable sorties to the highest-priority tasks. Priority is a function of deficit times importance. As resources are applied against a certain task, the deficit decreases, resulting in a lowering of the priority. As the priority drops, another task becomes of first priority, and resources (sorties) are diverted to take care of it. When all resources have been used, we measure the number of targets destroyed versus the original objective. Capability can then be expressed in percentage terms for each task. The audit trail for this process is clear and reproducible. Once we find that capability is less than 100 percent, the models trace factors which limit capability and determine their sensitivity. This computation is done for a fixed point in time. By building several of these models and aging both friendly and enemy forces, we can see capability trends over time. [SLIDE 2] portrays the process described above.

The chart shows the logic for computing capability for a single task or objective. But not all tasks are equal in importance. A simple averaging of task capabilities would give a false impression of our overall capabilities in a major mission area. To overcome this limitation, we often use weighted averages to integrate both capability and importance. The weighted average gives a clearer picture of overall capability and does not allow either the best or worst cases to drive the final answer. The process may identify a low capability in one area. But if that area is relatively unimportant (a point often overlooked in "disaster" briefings), why use extensive resources to fix it?

At this point, we have weighted average capabilities for each of the four mission

areas. But this doesn't answer the age-old argument of "My fighters are better than your bombers," "My munitions are more important than your C3"... ad nauseam. To answer the really tough questions, we have to have a common measure of merit across the mission areas. To promote this commonality we have similar logic structures and capability computations across the four major mission areas.

Slide 2
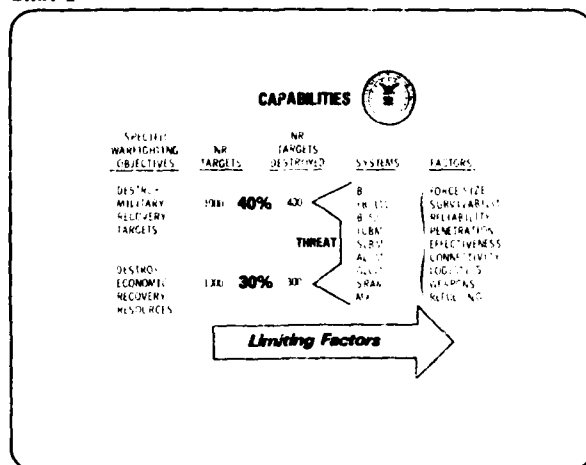
In the final step, we ask the Air Force Council for its judgment on the "relative importance of improving capability across the four mission areas." With these inputs, we can perform a calculation to produce a weighted average capability for the entire Air Force. The resultant number in itself is not really meaningful. It does not tell whether you win or lose in a war. It represents only the percentage of what you can accomplish in meeting the original guidance to "Inflict unacceptable level of damage..." etc. What is important, though, is that we now have a "peg point" (representing the state of our current or projected forces) from which to measure changes to the system. Any change to the threat or our forces (programs, strategies, or tactics) will move this "peg point" by some measurable amount.

MARGINAL ANALYSIS

During the POM process, the Air Force uses Program Decision Packages (PDPs), to add, continue, modify, or delete programs. These PDPs cover the spectrum of USAF activities: R&D, personnel, family housing, major weapon systems, aircraft modification, procurement, support activities, etc. Many of these have a direct impact on warfighting capability and are assessed through the AFWMAA process.

Beginning with the methodology previously described, we do a baseline analysis. This analysis identifies and prioritizes every limiting factor affecting warfighting capability; thousands of items are listed. As each PDP comes in, we assess it to determine which limiting factors it will help and how much. For example, will this program improve B-52 penetration of Soviet defenses? How much (expressed in probability terms)? How long will it help? Will the threat eventually overcome it? Obviously, this is a time-consuming process but well worth it. When completed, we have a far better understanding of what is available for investment.

When we know the contribution of each PDP and what it affects (e.g., improves B-52 penetration by 15 percent), we plug the new factors into the model, rerun it, and measure it against the old "peg point." This comparison provides a delta increase in capability for a single change to the system. We repeat this process independently for each PDP assessed.

At this point, we have a general feel for the contributions of each PDP. But this is only part of the story. If Program A offers a 60 percent improvement in capability, and alternative B promises an 80 percent improvement, we will probably not achieve a 140 percent improvement in capability by buying both programs. To ensure presentation of a realistic picture of contributions, we often do sensitivity analysis on blocks of several programs. These runs also help identify areas of synergy (e.g., matching preferred munitions with increased sortie rates).

When complete, the results show the marginal improvement in capability--even for systems that cross mission areas, such as aerial refueling (strategic, tactical, and airlift forces). As a product of this exercise, each PDP considered in the MAA process is assessed for its capability contribution by year over time. This assessment is based on delivered forces, which are a function of funding profiles and procurement lead time. For example, 1983 capability for the B-1 is shown as 0 percent and would increase only as the inventory builds with scheduled delivery dates. Capability is probably at its peak upon delivery of the final aircraft and then degrades slowly as Red forces develop countermeasures and/or improve defenses.

When all applicable PDPs have been assessed, they are rank-ordered according to their overall contributions to Air Force warfighting capability. Now the real world enters. Thus far, the process has looked at capability only, without regard to cost, possible delays in technological development,

etc. Decision makers may find that PDPs with high payoffs in capability may not be affordable--or several lower-ranking PDPs can be bought at less cost (and sum to greater capability) than a single high-payoff PDP. These are considerations which decision makers must evaluate in their final prioritization of the budget. Capability contributions are simply one more (albeit important) factor to consider, along with cost, risk, deterrence, and morale.

USE IN THE POM

The Air Force began development and use of Air Force Wide Mission Area Analysis (AFWMAA) in 1977. Originally, AFWMAA was designed only to evaluate the first year of the POM and identify priority needs for the future. Over time, the methodology has been enhanced to do macro systems analysis, identify chokepoints/limitations, and perform marginal analysis of force structure/support systems. With these enhancements, AFWMAA now plays an integral role in USAF POM and budget development activities.

Our participation begins when we complete the annual rebuilding of our computer models. This annual rebuilding incorporates any changes in national guidance, warfighting objectives, threat levels, or model enhancements. When the models are complete, we perform a baseline analysis, which identifies and prioritizes all limiting factors in our warfighting scenarios.

Armed with the insights gained from model development and capability assessment, AFWMAA provides advice to all levels of the Air Force Board Structure. The AFWMAA analysts work directly with the Panels (each headed by a colonel) associated with their respective mission areas: strategic offense, C3, mobility, war readiness materiel, etc. The analysts brief on PDP contributions, mission goals, macro systems operations (chokepoints/ limitations), threat data, and relationship of other PDPs. (Many line items, such as munitions, may have similar capabilities.) .

The Division Chief and Deputy Chief serve as full-time advisors to the Program Review Committee (PRC) and Force Structure Committee (FSC). Both groups are chaired by a brigadier general. The PRC takes recommendations from panels which are mission-specific and builds a complete funding list for the Air Force. The ability of AFWMAA to look across mission areas and prioritize warfighting PDPs into a single list is invaluable at this level. The analysts provide the same services to the PRC and FSC as they gave to the panels. For the Air Staff Board (chaired by a major general) and the Air

Force Council (chaired by a general), AFWMAA advises and briefs when the subject under discussion affects warfighting capability. After the POM, Issues, and Budget cycles, AFWMAA is tasked to provide the Board Structure with an independent analysis of (1) areas with excess capabilities, and (2) problem areas still remaining. The goal of this final review is to make sure we have achieved maximum combat capability within budgetary limits.

SUMMARY

Like any analysis, AFWMAA has both pluses and minuses. After using it in the POM process for the past two years, we believe the positive aspects far outweigh the negative.

On the negative side, there are four major limitations:

First, the mission area analysis process is scenario-dependent. If we follow national guidance and model conflict in both SWA and NATO, you cannot ask a "what if" for use of all forces in the NATO theater only.

Second, our prioritization results are not "the answer." Many other factors, concrete and abstract, go into the final decision.

Third, AFWMAA is a macro analysis. We build on test data and previous studies (e.g., probability of penetration for B-52s) rather than recreate and analyze each data element.

Fourth, we do not model the entire Air Force. Although many areas are important to warfighting capability (e.g., morale issues) we cannot link them mathematically to sortie effectiveness. These limitations help bound the scope of our activities.

On the positive side, we've hardly scratched the surface of what can be done. For the first time, we have a relative measure of combat capability. From this "peg point," we can measure the marginal changes in capability due to program adds, changes, or deletions. The process itself provides a clear and reproducible audit trail of input factors, limitations, and sensitivities. Since we use a common logic structure across mission areas, system changes can be assessed and compared whether they affect only one or all major mission areas.

The introduction and use of AFWMAA has done much to strengthen the role of planning the PPBS. As a logic process, it forces us to

state our objectives clearly and decide on their relative importance. With these objectives, we can then assess how productive programs are in meeting prioritized goals. For planners, this process is often more important than the numbers produced.

Also, for the first time, we have a macro analysis tool to look at how the entire system works as an entity. The models quickly identify chokepoints or limitations, which, if uncorrected, will determine operational capability--regardless of how good the rest of the system may be. Many of the limiting factors are unglamorous support functions with no strong advocates. These functions now have visibility and can be evaluated along with the major programs which have strong supporters and advocates.

The dimension of time or aging has been an invaluable addition to the decision-making process. Most leaders thoroughly understand our position today vis-a-vis the Red forces. However, when we add all of the new systems, force growth, and threat expansion over the next 10 years and ask what we should do, the issues become cloudy. The AFWMAA process will age the macro system over time--both Blue and Red sides--and will tell you how well you do. Because the threat grows so rapidly, in some areas we may invest billions of dollars just to maintain our status quo. The tool also provides a vehicle to test alternatives over time <u>before</u> commitment to long-term procurement.

As a management tool, AFWMAA is still in its infancy. The more we use it, the better it becomes. Several projects are underway to increase the scope, accuracy, responsiveness, and flexibility of the program. Some of these planned improvements are truly exciting and offer quantum enhancements of the planning aspect of PPBS. Regardless of how good this tool becomes, it will never substitute for sound judgment, practical experience, and human innovation.

DISCUSSION

I'll take any questions you've got now. Yes sir?

Question: You refer to this as the planning portion, and yet it seems to me that it would cross over into programming.

Colonel Donahoe: That is correct.

Question: Let's take a mission-area analysis which suggests shortages in given types of

warfighters. Does that become the basis for the programming decisions?

Colonel Donahoe: Yes, sir, the analytical results become a portion of these decisions. I'll give you a valid example. I'm sure that Jack Anderson has given you all the gory details on the IIR Maverick missile. From a capability standpoint, it is a very effective weapon. However, there are problems with the technological side of the program and with cost escalation. When we get into the Board Structure, you have to weigh all of these factors along with capability before you make a final decision. I think the answer to your question is that we see this as a bridge between planning and programming.

Question: Let me try one other recourse; let's say spare parts. This is a way of calculating spare parts requirements. But if I'm not mistaken, the war commands also have other models for the same scenarios which calculate spare parts. Do you get roughly the same answers, and, if you don't, how do you sort it out?

Colonel Donahoe: Basically, we work closely with the logistics community. They have a Logistics Capability Measurements System from which we draw information. It defines days of sustainability, and we deal with how many sorties you can generate in wartime. That's the transition we have to make. The inputs come from the commands and they identify the resources available. When I know how many sorties they can support, I calculate what we can do in wartime. But days of sustainability really don't tell me anything until I know how many sorties we can fly.

Question: I understand what you're saying. You're building on their more micro models rather than supplanting it with your own models.

Colonel Donahoe: That is correct. Now, what happens when those models disagree? That is a problem. We have many sources to draw from. In my office we have operational experts. We have a great deal of functional expertise we can call on within the Air Staff. We also receive information from Air Force Studies and Analysis and the major commands. We work with contractors, for example, from Rand or Anser Corporation--to verify the validity of the information we receive. As you can see, there are many checks and balances. But I have to tell you, if it comes down to the difference between .65 and .63, we're probably not going to catch it. It's going to stay a constant factor all the way through the process and will affect all answers equally. But if it comes down to difference between a 0.1 and

1.0, there's obviously a problem. That's when we work with our data sources and all those I've mentioned who can shed light on the "right" answers.

Question: Can you say some more about the boundary between your planning activity and the programming activity. Could you say where planning stops and programming begins?

Colonel Donahoe: I can't draw you a line that says .e stop here and the programming starts there. We're equally immersed in both the programming system and the planning business. The programming function is more concerned with fitting the program to the resources. They're concerned with building a program that is fiscally sound, where all the nuts and bolts fit together. But often I ask the question, "What is its real contribution to warfighting?" For example, if we have an area that is very deficient, someone will build a program to fix it. But when we look at the future, the priorities, and the levels of importance we may find that the whole area is not very important. So, if the whole area is relatively unimportant, why fix parts of it? Invest your money in more important missions and capabilities. I just can't separate planning and programming when talking about capability. What we are trying to do is force more thinking in terms of long-range planning. We want to change the planning horizon from 2 weeks to 10 years and say, "This is where we want to be." Long- and mid-range thinking on a macro basis will then guide our programming actions to achieve our goals.

Question: You're building something that involves a lot of partials. You're getting more and more information that you're putting together and integrating. Initially, you went out and took a great deal of information and put it together with great care in constructing the models. As time goes by and you keep asking people the same questions over and over again and having them reflect, it becomes more and more subjective. At some point in time, as this thing gets larger, your action time gets shorter and people may get a little tired of it. You're going to have some factors start creeping in. And, as you multiply more and more things by something, the answer is going to start showing bias.

Colonel Donahoe: I have some hard measurements; for example, PKs of weapon systems. In other areas, such as tactical C3, I have objectives of what needs to be done but no objective measurements. In many of these "soft" areas, I go to the person charged with conducting that mission in wartime, and use judgments for capability. There are some other

tests, but we do rely on judgment to predict how well some equipment will work in wartime. I understand the question to be "What happens if those multiply?" To help solve this, Rand is developing a methodological tool that will solve an awful lot of those problems and avoid "standard" answers without in-depth thinking.

Question: I guess the bias in my question is that occasionally other analyses seek the same type results you get. For example, in the logistics area, somebody could take the probabilities of repair, cost, overtime requirements, MTBFs, projections, etc., and the answer that you get doesn't stand a credibility test. Yet, you can't ever get inside the model and find out what your boundaries are because the factors are so subjective.

Colonel Donahoe: As I said, it's a very long, drawn-out process to go after that information. We do try to go back and verify as much of the information as we can. If the data comes in and it doesn't pass the test of common sense or we doubt it, then we go to our experts in the logistics community at the Air Staff for verification. We also have our studies and analyses available for many areas. We try to mesh all of these sources to ensure good insights and understanding of the data used.

Question: I was wondering: Does the model build a force? If so, I would think there's always a drive to increase the size of one's force. Are you just trying to catch the planning force?

Colonel Donahoe: We build the planning force with the force structure required to do the job, and then we assume that all needed support is available—that you have the logistics, that you have the C3, and that all of it's going to work. We know it isn't so, but nobody else can measure it. Then you plan the force based on how the systems operate today. For example, if I take the F-16, with its current limitations for night/weather operations, many aircraft will be required. However, we may be able to improve the munitions and reduce the number of airplanes required to meet the threat. We may also be able to add capability for flying at night and in weather. This would allow fewer airplanes to fly around the clock with more sorties. These are the kinds of tradeoffs that we're trying to identify.

Question: Can you comment on how you interact with the other services?

Colonel Donahoe: We begin with mission objectives. In Strategic Offense, we look at the entire Triad force and how they meet the objectives. We have to consider all Triad forces

because capability increases from the SLBMs, the ICBMs, or the B-1s change your targeting priorities. In theater warfare, the Air Force does not have to win the war by itself. That comes as a revelation to many of my contemporaries in the Pentagon. Let's take the NATO environment for example. First, we define what the threat actually is. Let's say it's x number of enemy airplanes. Then we'll decide where those airplanes have to be killed. You can't kill all the Warsaw Pact airplanes air-to-air, and you can't kill all of them on the ground. So, there's a mix somewhere, and we work with the USAFE to determine the best ratio for the total threat. Then, we look at what the NATO allies can do, based on the killing capacity of their aircraft, their weapon systems, their munitions supplies, etc. That reduces the threat remaining. Next, we'll look at the Army's ground defense assets. Their SAMs are going to kill a certain number of airplanes, and that again reduces the threat remaining. The Navy and Marines will also kill some of the threat aircraft. We started with the total threat, subtracted the NATO, Army, Navy, and Marine efforts. What's left is the Air Force's share. That's the USAF objective and our test for capability. We think it's fairly realistic and considers contributions from other services.

PANEL DISCUSSION: PPBS – THE EARLY YEARS

Moderator: Dr. Lewis R. Cabe
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Mr. John E. Keller
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Mr. Russell Murray 2nd
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Dr. K. Wayne Smith
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Dr. Cabe: Bernie Rostker indicated this morning, in the introduction to the conference, that we have scheduled two evening panels, the purpose of which is to provide a historical perspective to the Planning, Programming, and Budgeting System that we're working within today.

The panel this evening is directed toward the formative years of that system. We'll be looking at the P?BS during the time frame 1961 through 1969. Sherm Blandin's panel tomorrow night will pick up from that point to the present. The panel on Saturday morning will address the future.

We're fortunate this evening to have three excellent panelists. All of these individuals were extensively involved in formulating the PPB system during its early years. The first speaker will be Mr. John Keller, who is the Vice President of the Center for Policy Studies, Berkeley, California. John was on the OSD Comptroller's staff from 1954 to roughly 1965; so, he brings a unique perspective to us. He was there during the transition from the Eisenhower administration to the Kennedy administration. John will talk to us a bit about the way the budget was presented before the McNamara/Hitch years and what happened during the transition.

We're also fortunate to have Mr. Russ Murray, who is a principal officer with Systems Research and Applications Corporation. He has had two roles in OSD. As many of you know, he was the Assistant Secretary for PA&E from 1977 to 1981. However, some of you may not be aware that he was also the Principal Deputy Assistant Secretary for Systems Analysis from 1962 to 1969. So, he has two perspectives, and we've asked him to serve on panels in both roles.

Our third panelist is Dr. K. Wayne Smith, who is a group managing partner for Coopers and Lybrand. Wayne was a Special Assistant to the ASD for Systems Analysis from 1966 to 1969. He was also the Director for Program Analysis at the National Security Council from 1970 to 1972.

I would like to start this session by asking each individual to speak extemporaneously for about twenty minutes. I encourage each panelist to present his perspective of the PPB system from the time he worked in it. We'll do this in turn. After Dr. Smith has spoken, I'll ask the panelists to respond to questions from the floor. Now, I would like to ask John Keller to begin.

Mr. Keller: Thank you, Lew. It is nice to be with you all this evening. It's like old home week--for some of us, at least. It's interesting to be in this position, as a spokesman if you will, for the "previous administration." I have a feeling of déjà vu, because, as a matter of fact, that's how I got into Systems Analysis in 1961.

Alain Enthoven, as some of you probably know, had spent the previous year (1960) in DDR&E before the change in administration. So, when the administration changed, he had a year's worth of experience under his belt and despite his youthfulness, he had in one way or another learned a lesson that many, many bureaucrats never learned--that history doesn't start the day you take office. He understood the problems that he had to grapple with immediately. And, indeed, there were some very large issues to deal with immediately: the build-up of the Minuteman program, the phase-out of part of the manned bomber force, the Berlin crisis, the lack of conventional capabilities. He understood that all those issues had a long history and that, while he didn't want to be trapped by their history, he certainly wanted to understand how the world got to be the way it was--the world that he inherited and about which I have to make some comments this evening.

Because of the job that I had, which I will describe in a moment. I had a fair amount of exposure to all the arguments, both pro and con, on these major defense issues in the period '56-'61. So Alain said, "John, why don't you come over and just be the source of tribal wisdom? Tell us about how it was in the old days. You know, it may save us a little grief."

That's the basis on which I was hired in the Systems Analysis office. But Alain, being a good economist, must have said to himself, "Wait a minute. I'm paying him a salary, and I'm getting my money's worth in terms of tribal wisdom. But if I can get him to do any analysis at all, it will be at a zero marginal cost, and that gives me an infinite benefit-cost ratio; so, why not give him some substantive responsibility, too?" So, I wound up dealing with rapid deployment.

But that's getting ahead of the story. I think, as Lew suggested, it might be useful to talk a little bit about how resource-allocation decision-making was done in that period of the middle 1950s up through 1961. Then, I'll say a little bit about that first year or so with Alain Enthoven. I'm sure Russ (Murray) is a much more informed commentator than I am on the period subsequent to about 1962.

Just one last footnote before I get started, though: Somebody mentioned something about trends and things being flat or trendless. I think Col. Donahoe made the point that at some point you need to be out in the trenches and at least feel the effects of these trends. Well, I just want to establish, in a sense, my credentials in that area. I spent 10 years on active duty in the Air Force during the period 1943-1953. So, I saw the Defense budget and, being a very low-level junior officer, felt at least the effect of a Defense budget that in 1982 dollar terms went from about $700 billion a year to $90 billion a year during the period 1945-1950. Don't anybody tell me about wrenching readjustments. That was something to behold!

Then, of course, when the Korean War came to an end, President Eisenhower, who was far from the kindly, avuncular figure that his public image showed, ruthlessly cut back the poor old Air Force from what was then about 135 wings down to something like 90. That means a fair level of readjustment, too, but anyway that is really digressing.

How did the system work in that period of 1956-1961? During this time, I worked in an office that subsequently came to be called the Office of the Economic Advisor in the Office of the Assistant Secretary of Defense (Comptroller). We did a bit of economic analysis, but the title was quite misleading. However, it did give me a very good opportunity to see how the old process operated.

I think this should be informative and reassuring because I think we have seen the ups and downs in PPB. It has gone through some real cycles of being very much in place and effective and, in other cases, going into decline and then coming back. But I think that, no matter what deficiencies we see in the system as it currently operates, it is much better now what has gone on previously. Now, things were never as bad as the new people made them out. But, looking back from a historical perspective, the gains are terribly impressive.

If John Dawson were here, I'm sure he would make one of his more telling points:

that the life cycle of a resource-allocation decision-making reform is about 50 years, and, if you count the beginning in 1960, we're not even halfway through this reform. So, we still have a way to go before it reaches maturity.

During the mid-1950s, the budget process usually started in the spring. It would begin with a series of Cabinet meetings and National Security Council meetings, very much dominated by President Eisenhower, the Secretary of the Treasury, and the Director of the Bureau of the Budget. Wilford McNeil, whom many of you remember, was the super-competent DoD Budget Director. Those people would attend Cabinet meetings and National Security Council meetings, and, generally, some time in the late spring, the President would make a decision that the Defense budget for the year in question would be about $40 billion. Well, now, if we want to adjust that for price changes, that's probably like about $200 billion in this year's terms.

So, Wilford McNeil would go back home to the Pentagon, call the budget troops together, and say, "We have a $40 billion budgetary target." Using essentially the previous year's budget as the base to make changes from, by about September of that year he'd have a nice, neat, tidy $40 billion budget within the constraints imposed by the Presidential decision. And it would be a $40 billion budget distributed by appropriation titles.

Needless to say, there was certainly some consideration of issues in constructing that budget. It was not issueless. But there was no focus on what today we would call "mission areas" or "program categories" or "systems." It was largely a fiscal budget exercise.

Meanwhile, the Joint Chiefs of Staff had also been laboring away all year, and, sometime in about the same period of September to October, they would send up the Joint Strategic Objectives Plan (JSOP) to the Secretary of Defense. (Remember that, in those days, the fiscal year started on the first of July.) At the time, there was an explicit ground rule within the JCS that the JSOP was to reflect this country's security needs and that no price tag would be placed upon it. By deliberate decision, the JSOP came up unpriced.

The Secretaries of Defense had to know what this fine plan was going to cost us. So, one of the jobs at the shop that I worked in was to develop a "quick and dirty" cost estimate of the JSOP.

Well, if we're dealing in 1982 dollar terms, we have this $200 billion nicely constructed fiscal budget. The JSOP, when priced

out, (in 1982 dollar terms) turned out to be about $400 billion.

It is now roughly the first of October. The budget has to go to bed around the first of December. So, you now have 60 days to stuff $400 billion worth of programming and plan into a $200 billion fiscal straitjacket. That is not surgery, that's mayhem, and the weapon of choice is not a scalpel, but a meat-ax. But the process got done because the deadlines were unavoidable. You can say what you want to, but the old-fashioned "budgeteers" did their jobs. Come the first of December, we had a $200 billion "plan and program" to fit inside the $200 billion budget. But all that neat balance and symmetry that had gone into the original JSOP, needless to say, was destroyed. The bits and pieces were lying around the shop floor in bloody hunks.

The man that I worked for at the time, Henry Glass, had to take the bloody, raw bits and pieces that had survived the "program budget review" and stitch it all together in the form of the Secretary's posture statement and make it sound like we knew what we were doing. It was a mark of Henry's genius that, if you read the posture statement fast and didn't think too much about it, it sounded like a Defense program. That, in fact, was the principal mechanism for conveying to the Congress what the Defense program and budget was all about. For 23 years, Henry Glass wrote that statement.

Now, the problem, of course, that the PPB process ultimately had to address is that we had a planning process in a planning unit that was by design separated from the resource consequences of that plan. Any time you take a group of planners and divorce them, either intentionally or unintentionally, from the resource consequences of their plans, they are instantly going to obey the law of social gravity and go off into outer space—cloud 9. It is not just the Defense folks that do that.

In 1965 I went with Mr. Hitch to the University of California, where he became Vice President for Business and Finance. I was Director of Analytical Studies. When we arrived on the scene, the academic planners were just putting the finishing touches to the University of California's master plan. You think you do well planning for 5 years, 7 years, or with your Extended Planning Annex, for 15 years. This was 1965, and they were planning for the year 2000—a 35-year planning horizon! Well, when Charlie Hitch arrived on the scene, this master plan was in its final rounds of preparation. The first thing Charlie wanted to know was how much the plan was going to cost. So, I went back to the old standard

practices. I got a bright graduate student, and we developed a costing model. And, again in 1982 dollar terms, that plan, as best we could estimate, would have an operating budget for the University of California of $25 billion by the year 2000. Even by defense standards, that seemed to be a pretty fair number. I was impressed.

We took that back to the academic planners, and they said, "Look, you're just trying to scare us because built into that estimate is a 3 percent inflation rate and a 7 percent annual growth in enrollment. If you take 10 percent and compound it over a whole bunch of years you're going to create big numbers."

We thought that was a pretty valid observation. So, what we did was go back and calculate the University of California's then current operating budget as a fraction of the state's personal income. This provided a rough measure of the size of the resource pie that the University of California was getting. Now, mind you, this was the mid-1960s. The "golden flood" was still pouring over the University. Well, we made that same estimate for the year 2000, and it reflected a tripling of the relative share of the state's resources. That's not arrogance, that's egomania. But that's the University of California.

So, the problem was that the University allowed a bunch of planners to go off into cloud 9 and create a big, ambitious plan. In this case, there were no short-term checks on that plan, and the University actually started down the road of implementation.

And what happened? The same thing that happened in the Defense Department throughout the 50s. Programs would get started, and they would cost you only a nickel in the upcoming year and would cost you two GNPs five years down the pike. How do you find that out? By hard experience. As a result, you have program cutbacks, readjustments, and disappointed expectations.

In the University's case, it took them two years to find out that the plan was grossly resource-infeasible. I remember sitting at a budget hearing where the dean of the new medical school at UC-Davis campus was sitting across the table from the chief university budget officer. The man, with tears in his eyes, said, "What are you doing to me? Here I recruited faculty, developed the curriculum, recruited students, and you're now about to give me half the resources that my operation calls for." The budget officer was a better type than most. He said, "Hey, fellow, I feel for you, but I can't quite reach you. The resources are just not available." So, I

think a major deficiency in any planning process is to allow the plan to be created in isolation from an understanding of its resource consequences.

Now, mind you, I'm not arguing for the opposite philosophy. Do you take a resource constraint and blindly accept it? It is an iterative process. This morning General Cunningham had the arrows on his chart going in one direction. Somebody this afternoon observed that, in practice, it still tends to go the other way. It needs to go both ways.

There is no level of effectiveness you must meet or the nation goes down the tube. And there is no absolutely sacrosanct budget level. It's a process of adjustment at the margin.

But, again, I'm starting to digress. Let me return to the DoD budget process of the late 1950s. The services would send budget submissions to OSD. And, of course, to some extent they obviously addressed programs and issues. One of the major features of the system those days was the so-called "big tent show." The Secretary of the affected military department would come, armed with generals and colonels 20 deep, and they'd get into a big conference room. The Secretary of Defense would be sitting at the head of the room or the table, and the service Secretary would be there with his corps of supporters, and he would make a pitch for that service's budget and, to some extent, programs, since it was somewhat program- and issues-oriented. It was a very interesting experience to watch one of those shows.

Secretary Quarles was in charge of the Air Force toward the end of that period. He was one of the most impressive people. The others came to meetings as "special pleaders." They were advocates all the way: If you don't give me what my service asks for, the country's going down the tube for sure. Donald Quarles walked that terribly thin line between sticking with the Presidential directives and retaining the support of the service of which he was the chief. During these meetings, the Secretary of Defense and the budget officer would ask all kinds of tough, detailed questions, such as the state of the inventory of some particular part. And you'd see 20 colonels whipping through the briefing book and before they had even gotten to the right page, Secretary Quarles would state the number. That's an impressive performance and wins "brownie points" in a political contest such as that. You have to see it in operation.

One of the reasons Assistant Secretary McNeil had such vast, vast powers at that time

was, I think, best summarized by Henry Glass, when he said, "Here sits the Secretary of Defense, and there sit the service Chiefs, the service Secretaries and the service staffs behind them. They're all clamoring for much, much, much, more than can be afforded, and the only person sitting on the Secretary's side who is helping him say no in a way that is even semireasonable is Wilford McNeil!." So, while he didn't have any of the apparatus that you all have now to help the Secretary say no or yes more reasonably, he unreservedly helped the Secretary make those absolutely inevitable decisions to disapprove requests for funds. And the budget folks did a pretty good job in supporting him.

Eventually, some form of reconciliation would take place. A few major issues would be isolated, and they—the Secretary of Defense, the Comptroller, and the service folks—would troop down to Augusta and would decide on the big issues. Then, Henry Glass would go to work and try to make this all sound reasonable and rational.

And what we look for today in a POM—or, in my time in Systems Analysis in a Draft Presidential Memo—would be found in those days in the Secretary's posture statement to the Congress and the Defense portion of the President's budget message.

Late in 1950, what was Senator Symington all hot and bothered about? What was Joe Alsop crying about? "We need more B-52s, and a missile gap is upon us." And so, that concern with that issue was, in fact, reflected in the posture statement and the Defense portion of the President's budget message.

One little footnote to all of this: After the formal budget process had done its work and the big decisions had been made, Henry Glass would draft the Secretary's posture statement, and we would write the Defense portion of the President's budget message. This would generally occur in December.

There was a policy in effect at that time that representatives of the services would be shown early drafts of that posture statement, to be sure that it was factually correct. But a very interesting interchange used to go on. It was a completely informal, unofficial mechanism, but it had some real effect on how things operated. Those service people were persuasive advocates for their services. They would come down and go to the mat with Henry about the exact language in the posture statement to maximize their position. As a matter of fact, in the very first year of the new regime, I remember Pete Crow coming down over the B-47 phase-out and saying to Henry

Glass, "Henry, I know the Secretary made his decision, we've gone to the mat with the Secretary, we have lost, but the Air Staff feels extremely strongly on this point. Will you re-raise that issue one more time with the Secretary?"

And when Henry went over that first draft with Secretary McNamara, he said, when he came to that portion of the posture statement, "Mr. Secretary, I know you have heard these arguments, but with your permission I would like to raise an issue with you."

Secretary McNamara, who was a much less authoritarian person than he is generally portrayed, said, "Well, surely, Henry what would you like to talk about?"

So, Henry laid out the Air Force position on the B-47 in about five minutes in a fashion better than the Air Force could ever have done it. The Secetary listened to all this very patiently and, when it was all over, said, "Henry, I do appreciate all those arguments, and I have thought very hard about it, but I think I really do want to stick with the schedule that we have adopted." But the role of those service representatives was a very interesting one in that early period.

So, the new administration came in. What were the various roles involved here? Well, Charlie Hitch, the true intellectual father of rational decision-making in the public sector, became Assistant Secretary of Defense (Comptroller) and Alain Enthoven became Deputy Assistant Secretary of Defense for Systems Analysis. In those early days, Alain spent, I would guess, three-quarters of every working day working directly with the Secretary, principally on strategic retaliatory force questions, and did it with Charlie Hitch's blessing.

I never have seen a working relationship so good between a boss and a subordinate. He just said, "Alain, you have my power of at-torney." That suited Alain's style well. Alain was the ultimate "Theory Y" man: Pick a few good people, and tell them to go look around and see if they find anything interesting to do.

I came in August 1961. So, Alain said, "You know we've got these problems. Should the production rate for the C-141 be four or seven a month? And how about buying commercial C-130s or 707s instead of -14' ?" How subop-timized can you get? We weren t even asking about the possibility of five a month, six a month, eight a month, or three a month; on the C-141 issue, four or seven were the only choices. But that's how I got into the rapid deployment business.

Alain's style, I would say, was very, very non-directive, extremely non-directive. And the staff initially consisted of about five people. Eventually, of course, the staff grew. But I think what perhaps was not appre-ciated at that point in time was that the staff, even in its early days and certainly as it began to grow in size, was roughly half civilian and half military. Alain simply drafted, regardless of rank, the best brains that he could find in the military depart-ments. And even the civilian people who were in Systems Analysis in those days had a fair amount of experience.

I suppose to some extent I'm bragging, but many of the Air Force officers I was doing business with in rapid deployment had less flying time than I did. And you know—at the bar, at least—that wins you some credibility. But I think the important point is that it was not a bunch of young, fuzzy-cheek defense intellectuals, as Tommy White, the Chief of Staff of the Air Force characterized them. A lot of military folk there and even the ci-vilians had a certain amount of experience. In those days, in the early days of '61, there were no program budgets. There were no sys-tems. There were no mission areas in any for-mally defined sense. There were just a bunch of hot issues: Improving the conventional forces, acquiring deployment capabilities, the switch from manned bombers to missiles, and so on.

Alain assigned these issues to several of us on his staff. And the Secretary of Defense contributed. Secretary McNamara contributed, at least for the first two years. In 1961 and, I think, again in 1962, he published his famous list of a hundred questions. Mr. McNamara's mind was incredibly fertile. Obvi-ously, he could ask questions much faster than we could answer them. But I think if you would review that list of a hundred questions, you would find that he had certainly touched on all the major issues.

That list was our menu for the initial analytic efforts. We also obviously had some fairly informal Presidential and SecDef guid-ance. The President had made it very plain in some of his speeches that he wanted not only an improvement in our strategic retaliatory forces, but also a major redressing of the imbalance between conventional and strategic forces. At that time, we were coming off the John Foster Dulles "massive retaliation" kick because the Soviets were beginning to acquire some strategic nuclear capability of their own.

The Secretary of Defense supplemented this Presidential guidance with some further

guidance of his own, but in a fairly general sort of way. In those days, there were no Presidential Memos or DPMs to summarize what we found. We simply sent studies and their results to Alain, and he dealt with the Secretary and the Assistant Secretary almost on a one-on-one basis.

It wasn't until much later that year that a man named Dixon came on the scene, and Charlie Hitch commissioned him to create what we now know as a program budgeting system. It was not a real PPB, but at least it was a program budget approach to this whole business. That was a relatively late introduction. It certainly did not come in early.

In McNamara's first year, we had a very interesting confrontation. That was late in 1961. At the time, Secretary McNamara's first budget was being put together. There had been a program review of sorts within Systems Analysis, and then we went into the budget cycle. The budgeteers, for a whole variety of reasons, reopened every issue that had been settled in the program review process, primitive as it was at the time. I understood, at least bureaucratically, why they were doing that. As a consequence, in the following year, Charlie Hitch established a firm ground rule that in the budget review process you could not reverse a decision that had been made in the program review process; you couldn't even reopen the issue.

Needless to say, that left the budgeteers, who had been "king of the hill" up to that point, feeling pretty unhappy. Of course, subsequently there came into being a thing called Subject Issue Papers. By about 1964 or 1965, there were six hundred of those papers going to the Secretary over a period of about 2 or 3 weeks. It was easy for a clever budgeteer to reraise a number of fundamental issues under the guise of a one-page subject issue paper. This conflict in the dual program and budget review was present right from the beginning and, at least initially, was settled by fiat.

The budgeteers were mechanics. They took the program decisions, filled in the details, the production schedules, the time frames, and a few things like that, but otherwise that was it.

Let me summarize what kind of real change occurred during that first year or so under McNamara. I think, as I indicated earlier, we tend to forget how big the change was. It was not truly revolutionary, but it certainly was evolutionary on a scale that represented a very major change. What most of you people take for granted now was really pretty new

stuff then. There was a forging of a link between programming and budget. Program reviews and program decisions were the dominant force, and the budget was to fall out of that.

Previously, the fiscal tail had been wagging the program dog: You put together a fiscal budget and discover by experience the program consequences. One of Charlie Hitch's major objectives was to bring those two processes, and ultimately the planning process, into a very intimate linkage. After the program budget effort had been completed, there was now a very formal focus on what we called, in those days, program elements, program categories, or—if you will—mission areas. That produced a highly formalized focus on decision-making. Resource-allocation decision-making was on things called programs and not line items. All you have to do is go out into the rest of the federal government, or a state or county government to realize that that notion still is extremely foreign and rare in other governmental entities.

A fundamental change was the notion of the extended time horizon. That, of course, had been one of the major problems in the old process. All that ever got looked at was the upcoming budget year. So, people would come in, as I indicated, with those programs that cost you a nickel in the upcoming year and GNPs 5 years later. And now you guys are arguing about putting more effort into the EPA or the 15-year time horizon? You wouldn't dream of a time horizon of 1 or 2 years. So, I think that perspective is some measure of the change in thinking that's gone on.

I think another major change that took place during the early 1960s was the systematic application of quantified economic reasoning to the problems of choosing among and within programs. The introduction of some notion of a basic economic rationale, a trading-off between cost and effectiveness within and among programs. I notice today that General Cunningham talked considerably about trade-offs: how he forces his people, when they want a new program, to identify the existing program they want to kill. This is the notion of trade-offs.

Colonel Donahoe talked about opportunity cost. Some of the other gentlemen talked about marginal effects. If you went to a BoB budget examiner in 1956 and said, "Let's talk about the marginal cost and effectiveness of this weapon system," he would say, "Come on, fellow, talk English." They wouldn't have understood that. So, people have become acclimated to this notion of the application of a basic economic rationale: We buy things, they give us a certain defense utility; but that comes

at a certain cost, and, at the margin, how do we buy the greatest utility?

What happened in that first year? Now, this is past the transition. We had started to stabilize a bit. As I indicated earlier, we had introduced program budgeting. We had finally introduced what we called initially Program Memoranda. Eventually, these became Presidential Memoranda and then, eventually, became Draft Presidential Memoranda. After the first year, even Jack Kennedy didn't look at them.

The Memorandum became a major tool. It was a way of achieving three things. It summarized the state of major programs (what was proposed to be done), it provided an analytic rationale, and it identified what we didn't know that we ought to know to make better decisions next time around. It was a fantastically useful device. In those days, it was generated at the OSD level. You now call it a POM. This document was a very significant invention. And, of course, in those days the Systems Analysis office prepared those drafts. These documents certainly provided more relevant information. They contained the analytic support for the decisions and provided more timely information for the Secretary. But there were some deficiencies. They were very late in addressing the support areas.

As that system began to mature, preparation of the DPMs eventually had two interesting effects. It did what Colonel Donahoe was describing. He stated that he did not bridge planning and programming, he merged them. That process began in the writing of the DPMs. Now it is done more at the service level, rather than the OSD level. Programming, budgeting, and planning began to come closer and closer together and were merged into almost a single process. We used to have to write our own PCPs, which I think you now call PDPs.

I think the other important point that I would make is that the writing of that Draft Presidential Memo, with all the implications that it carried, was a highly collaborative affair. I remember very well having service programming people sit right in my office as we worked out the program consequences, down to rebasing, training requirements, trickledown aircraft, etc. We used to do that whole process collaboratively with the military departments.

So, a very interesting reshaping had taken place within the Department of Defense. An unofficial, de facto team of OSD and service people was essentially doing this planning, programming, and budgeting. I think one

of the tragedies was the abortion of that developing—and, I thought, rather interesting and fruitful—relationship.

That takes us through about 1962, with a few excursions into the future. I'm sure I've used up my time.

Mr. Murray: John, I'm not sure you've left a lot to say. Looking back on that early era, for those of you who weren't there, I think the important thing is to put it into context. It's true that PPBS was formally introduced, and it's true the Systems Analysis office was given a home in OSD, but the thing to remember, really, is that the true, revolutionary change that occurred then was the advent of Robert McNamara as the Secretary of Defense.

Since 1947, Secretaries of Defense had been trying to manage the department with a great deal of frustration. It wasn't until the 1958 Act and advent thereafter of Robert McNamara that the Secretary really took over the management of the department in a highly centralized way. It was centralized to a degree that I doubt we will ever see again. The PPBS and the Systems Analysis office were merely tools used by McNamara to gain control over that department. His method of operating the department has not survived. He thought it would.

But, surprisingly to me, the PPBS and the Systems Analysis office, to one degree or another, have indeed survived. I was very surprised by that. I can recall that, at the advent of the Nixon administration, when Enthoven was leaving, we were discussing what we had accomplished in those six or seven years. He said that he really felt very satisfied that he had established the Systems Analysis office as a permanent part of the Defense Department. And I said that there is no way that this office can be a permanent part if it doesn't have the enthusiastic support of the Secretary of Defense. Well, it had varying degrees of attention paid to it, but, nonetheless, it did survive. Both PPBS and Systems Analysis, now called by other names, still exist. I think that's really a major contribution of the management in the Department of Defense.

The things that PPBS was intended to cure were fairly obvious. The budget had been put together, mostly in input terms, budgetary categories, and appropriations for things such as manpower, without any particular distinction by functions. There was no distinction between Air Force manpower for tactical air and for the Military Airlift Command or SAC. The new programming system translated that, more or less, into output terms. Now, they

weren't really output terms. They were allocations to functional parts of the Defense budget: strategic forces, general purpose forces, airlift, etc. That isn't actually an output, because simply owning the forces is not an output. But it is closer than it had been in the past, and it did permit, I think, somewhat more rational decision-making.

The other thing that it did, as John has mentioned, was extend the horizon a little into the future, so that the out-year implications of near-term decisions were looked at to at least some degree. It's true that people always pay most attention to the budget year, and that will always be the case. But, at least, there was a vehicle for looking at the out-year implications.

The thing that was important in getting those things established, I think, was the presence of Robert McNamara. He, indeed, paid attention to analysis. I mean he really read it himself. He'd add up a column of figures so fast that it would embarrass you if you'd added them up wrong. And he was the one who looked at those analyses and made them a real part of the system.

Now, there were obviously problems with the system. As I mentioned, it was not strictly an output-oriented system. It wasn't then, and isn't yet, either. There was also a problem that was brought up by Bob Anthony, who replaced Charlie Hitch as Comptroller. It was very uncertain how these decisions were actually carried out. Amounts of money were authorized and programmed for given functions, but how they were used was far from certain. That goes on to this day.

The Systems Analysis input was, I think, much more experimental than people recognized at the time. It had been practiced for a long time, but it didn't have much of a direct influence on what went on in the shaping of the Defense budget. In the McNamara era, it did have a good deal to do with what went on.

I think that one of the major troubles with it at that time was the overwhelming power that the Systems Analysis office had. The services were more or less naked and defenseless against the arrogant young Whiz Kids, simply because they hadn't really played in that game before. That led the arrogant young Whiz Kids to become even more arrogant, and pretty soon we believed that, not only were we smart, but we were invariably right. That was a bad thing, and I hope that kind of thing doesn't happen again. Since that time, the services have developed a great deal of expertise. And now, I think, OSD is given a run for its money when it comes up with

analysis that may not be perfect (as none are).

I think it is interesting the way the programming system developed at that time. John mentioned the DPMs, the Draft Presidential Memoranda. Those actually got started shortly before I got there, which was during the time of the Cuban missile crisis in 1962. Prior to that time, some papers had been drafted--I believe, on the B-70 and Skybolt-- for President Kennedy. McNamara was so pleased by those papers that he said that this is a useful kind of thing and we ought to incorporate it into our system.

The format was not standard, but the general idea was to have three parts to each DPM. Part one would be, supposedly, what the analysis showed, something with which all reasonable men could agree. They might differ on interpretation, but they should not differ on the analysis. Of course, that was a bit idealistic; nonetheless, that was the goal. The second part was McNamara's interpretation of what the analysis meant. What should be done about it came in the third part. This was really a whole section, laid out in considerable detail, of what McNamara's defense program was going to be unless you persuaded him otherwise. That was a form of management that obviously was completely centralized. It was about as central as you can imagine the system being. Those DPMs were sent to the services for reclamas. Reclamas were indeed prepared and entertained but, by and large, rejected.

The trouble with the system was the myth that there was no arbitrary budget limit. That was something that President Kennedy had said when he came in. It soon became very clear that that wasn't the case. As John has mentioned, this caused the budgetary trimming of the programs toward the end of the year to be more and more extreme. As I remember, during the last year of Johnson's administration, the budgetary cut amounted to 20 percent. As John also said, rational programming is very difficult when you take cuts of that size. The DPMs had lost their credibility.

Another problem was that the services, in my recollection, chose not to play the game very hard, figuring that it really was a losing game for them. Arguing hard over the DPM didn't seem to be getting them anyplace. So, there was a tendency to opt out of the process, which was a very dangerous trend. I can understand why they took that view, but it is impossible to run the Defense Department from room 3E880. It does require some help from the services. At the end of those years,

we had a problem in that there was not adequate service participation.

We also had a problem in that there was not really an adequate fiscal target. It seemed clear to me at the time that having no arbitrary budgetary limits was something of a fiction, and it made planning very, very difficult.

Beyond that, a larger problem, which is still unresolved, was what are those forces for and how do they tie to a national strategy? What is the connection? The connection was tenuous at best.

Some of the work that was done in individual areas was quite good and quite complete. I think the work that was done in strategic forces, although many people disagree with the doctrine now, was relatively thorough. But the development of a national security strategy was only very loosely linked to the Defense budget.

McNamara, when he came in, had cast aside the old BNSP, which was the Basic National Security Policy, on the grounds that it was meaningless. It was full of such statements as "We will withstand the forces of Communism wherever they may rear their ugly heads." That wasn't too useful for programming; so, he just threw it out. The only trouble was, we didn't really have anything to replace it with. And we still don't.

That's getting toward tomorrow's story. But, at the end of the McNamara and Clifford era, a lot had been done. Still, it was clear there were problems with the system that had been created. It was an excellent start, and I think it's become clear now that it's unlikely we'll ever go back to the pre-1960s days. Many of the changes that were made then have stayed and become institutions. They were not implemented as well as you'd like to see them. Nonetheless, a start was made. There was a long way still to go, but it was a remarkable era. Thinking about it is somewhat similar to trying to think about the Vietnam war today. One has to put oneself back into that era to understand how we got into that mess. By the same token, to understand the revolutionary change in the way the Defense Department was managed, it's necessary to think back to Robert S. McNamara and how different he was from all the Secretaries who preceded him, and how different he was from all the Secretaries that have followed him. Thank you very much.

Dr. Smith: My task, as I understand it, is to give you a summary of PPBS for the decade of the 60s. That's somewhat like taking a sip from a firehose, but I'll try. I haven't really thought very much about PPBS for 10 years. The reason is that the last time I gave a speech about it, a guy stood up in the audience and said the only thing meaningful about PPBS is the last two initials. I thought he had a point.

My job, at one time in the Pentagon, was Assistant for DPMs. That's a magnificent title and I have never had one since that was quite as good. The task was to take three hundred pages of garbage and condense it to 20 pages so that the world would know what this particular discussion was about. So, what I'm going to try to do is take what my two colleagues have said and edit it for you down to its essence. If you took notes then, you will have a very good backdrop for what's about to follow because I'm really going to try to put this into perspective for you.

What was PPBS designed to do as it was installed in the Department of the Defense and elsewhere throughout the government and, indeed, throughout the country? These are some of the things that it was designed to try to deal with:

First of all, there was little or no central leadership in the Defense Department. The role of SecDef was that of a judge or referee; he wasn't a leader. He had no independent staff support. So, there was no central leadership.

Secondly, there were all kinds of problems with the budgeting system. The Defense budget was a bookkeeping device, rather than a policy instrument. It was a mechanism for keeping spending down, rather than an instrument for integrating strategy or forces or costs. The information in the budget was useful at very low levels only; it was not really useful at higher levels. Strategy and forces were considered military matters, and budgets were considered civilian matters. The individuals working in these areas never talked to each other. (All of these points have been covered by my colleagues.)

There were arbitrary budget ceilings, if you will, and there were inflexible service allocations. From 1954 to 1961, there were only minor changes. The Air Force got 47 percent of the budget, the Navy got 29 percent, and the Army got 24 percent. It really didn't vary very much. Budgets had a one-year horizon.

There was lots of criticism of the budgeting process. Maxwell Taylor talked about it in The Uncertain Trumpet. Congress talked about it; the Rockefeller Report of 1958 talked about it. No one was really happy,

because requirements planning was being done without explicit regard to cost, and budget planning was being done without regard to need. So, open-ended requirements met arbitrary budget ceilings, and something had to give. What gave was rationality and reason, from my point of view.

Let me comment on service programs versus national programs. I remember, back in the early '60s, having a Navy admiral tell me that a particular program was not a Navy program but a national program. That was a little disconcerting to those of us who thought the whole Navy was a national program.

Budget tactics: The services were marvelous at budget tactics. There was the "foot-in-the-door," the "thin-edge-of-the-budget-wedge," the "gold watches." The military services were very good at budget tactics. They had shortages. They always had shortages. Someone said the worst thing you could do to a service was to take away its shortages because they led to other kinds of "goodies" that you could get later on.

In addition to little or no central leadership and a budgeting system that really was a bookkeeping device, there was no central plan. There were only the individual service plans which, when put together, really didn't make a whole. There was duplication in R&D, and a lack of quantitative standards of adequacy for almost every category of procurement.

Cost estimates were as about as good as they are today. Remember, now, I'm describing 1961. If some of this sounds vaguely familiar, that's not my fault. But this was the perspective, if you will, from which PPBS came and which it was designed to cure.

Now, let me move from that to talk about some of the ideas that were involved in PPBS. The first idea was decision-making based on the national interest, that is, decision-making based on some kind of explicit national criteria, rather than decision-making based on service programs. What that really meant was more centralization.

Another intellectual foundation or idea was the consideration of needs and costs simultaneously. John talked about that. Ends and means do interact. And what is worth trying to do depends in part on how much it costs.

The third idea was the explicit consideration of alternatives--real alternatives, not strawmen.

A fourth idea involved the active use of an analytical staff. That was the Systems Analysis office.

A fifth idea was the multiyear force and financial plan. That was the FYDP.

The sixth idea was the use of open and explicit analysis. That was the DPMs. They provided due process, if you will, for all of the interested parties in the process.

The ideas behind PPBS, from my point of view, are much more important than the system itself. It's the ideas that are important to a management system, and the PPBS was wrapped around those six ideas. The tools that came out of it have been talked about: the FYDP, the DPMs, the Systems Analysis office, the Development Concept Papers, Readiness Tables, etc.

What does all of this mean? What are the implications of PPBS in the early days? It led, as Russ said, to more centralized planning. There was a loss of individual service authority. This led, in some respects, to overcentralization.

A second implication was that there was, is now, and is likely to be in the future, more civilian input into this process. The Whiz Kids had a great intellectual commitment to this process, but they didn't have a life commitment to the process--and there are some differences. There was more quantitative input into the system and less qualitative input than there had been in the past. And those who have thought seriously about Vietnam will worry about that particular implication.

Let me say a few words about conceptual versus practical solutions. There was an emphasis on quantification and perhaps an overemphasis on cost. Our friend Mendel Rivers, who was then Chairman of the House Armed Services Committee, used to say, "You know the cost of everything and the value of nothing." He may have had a point. But, in essence, PPBS was a management philosophy, and, in my judgment, during that period its benefits outweighed its liabilities. Thank you.

Dr. Cabe I would like to open it up to questions.

Question: John, you make it sound as if all this evolved on the job in OSD in 1961, '62, '63. I seem to recall that some of the intellectual structure for PPBS came out of the Rand Corporation--Dave Novick and other people like that--in the '50s. Am I right?

Mr. Keller: You're exactly right. As a matter of fact, it's one of the good arguments for Federal Contract Research Centers (FCRCs). The general design of the PPBS system was written

down very carefully in Charlie Hitch and Roland McKean's book, The Economics of Defense in the Nuclear Age. If you read that, you will see a great deal of the work that was done. Not only the work on the PPBS system, but a lot of the work on strategic policy, clearly, came out of the Rand Corporation. A lot of the Rand people did some very careful thinking in the 1950s. There was a long history of careful analysis and work on the part of very intelligent people. A lot of people in the Defense Department at the time came from Rand.

There was Charlie, who had been the head of the Economics Department, Alain Enthoven, and Harry Roland. Harry worked in ISA, rather than Systems Analysis. All of that previous effort was an investment in the kind of thing that led to the possibility of good systems analysis in the PPBS; so, I think you are exactly right. I think, Russ, the other point you made earlier is an important one here. All of that interesting intellectual work done in the Rand Corporation and other places during that period would have had little practical impact, were it not for this extraordinary confluence of Secretary McNamara, Charlie Hitch, and Alain Enthoven. This was one of those unique events, I think.

Question: Mr. Murray, the services' staffs that worked with you over an 8-year period, I would guess, changed dramatically. Can you talk a bit about the relations with the services and how, in fact, they did change?

Mr. Murray: Yes, I think there was a change in attitude. The attitude when I got there had gotten to the point of white-knuckle hostility. I think that moderated to some degree as the Administration went on.

On the other hand, it wasn't just a matter of coming to terms with the services. I think, to a great extent, the services simply dropped out of the conflict. They knew it was an uneven battle. They could come up with all kinds of arguments, and the Secretary would seem to turn them down on every occasion. So, after a while, they appeared to give up.

One of the remarkable things that I remember was an operation called 693. The purpose of this operation was to get $3 billion out of the Fiscal Year 1969 budget. That was the first time in that era that I can recall where the services were each given "bogies" of a certain amount of money to get out of the budget. They went back to their offices and came up with the money, and they thought it was perfectly wonderful. They were just delighted to be able to do this on their own, without having the Systems Analysis people telling them what they could and couldn't do.

When McNamara came in, he raised the Defense budget by about 20 percent, from about $40 billion to $50 billion, and they hated him. Laird came in and cut the budget, and they loved him.

Dr. Smith: There's another point worth making here. In addition to opting out of the system within the Pentagon, the services chose other arenas within which to play. Congress was one of them; the National Security Council was another. So, opting out didn't mean opting out of the process entirely. It just meant changing the venue of where they chose to play.

Question: Can you tell me the kind of support that Mr. McNamara had from the President? Did Mr. McNamara have total leeway for everything in the Department of the Defense, or did he get some top-down guidance himself?

Dr. Smith: I would assume that he got some top-down guidance, but I never saw a word in those Draft Presidential Memoranda changed from the "for comment" version to the final, approved version. Russ, did you ever see a word change?

Mr. Murray: No. One of the things that struck me about McNamara was his incredible loyalty to the Office of the President. I don't recall him ever coming back to the building and saying, "Gee, fellows, I argued for this, but the President turned us down." There was never the slightest comment along those lines. What went on between him and the President was a private matter. There may have been people that he talked to in the Defense Department, but I certainly wasn't in that circle. I hope very much that he has written his memoirs so that we will be able to learn what happened during those days.

I think that, after the assassination of President Kennedy, he transferred the same loyalty to President Johnson and got along with him very well for quite a while, until the Vietnam war began to get between them. But, until that time, I think he had the greatest respect from both of those Presidents. And I imagine that it was not so much guidance handed down as it was a discussion between them.

Mr. Keller: Just a footnote to that: There really were two watersheds involved in the evolution of PPBS during this period. One, the change from President Kennedy to President Johnson and, two, the heating up of the Vietnam war in the fall of 1965. I left at that point; so, I really cannot comment on any of that, but from talking to other people I have the feeling that there were certainly

some significant alterations as a result of both of these events.

Question: The Vietnam war was mentioned briefly. I have the impression that you think that PPBS was somewhat irrelevant to the decisions regarding the Vietnam war. I'm curious how you'd respond to that. But I'm really more curious about what you think the effect of PPBS might have in the future on decisions similar to the ones that you saw being made when we got involved with Vietnam.

Dr. Smith: I don't know whether it was irrelevant or not, because it was never applied. It was not used, in that sense. At least, Systems Analysis was never given a charter, to the best of my knowledge, to do so. They did analysis, but I don't know whether it was used in the decision process or not. The key issues there were judgment calls, not quantitative, finite, economic analysis. So, I don't think it was given a fair test.

Question: The Whiz Kids had disdain for military judgment, and I guess Mr. McNamara did too, in a lot of ways, because he took your judgment over the military in the budget areas. Why weren't you called upon in this kind of decision-making, where, clearly, there were some important economic and fiscal questions that needed to be asked?

Dr. Smith: That is an excellent question, and I cannot answer it for you. I've even said that publicly in a chapter in a book. I raised the same question that you just raised: Why weren't they asked? I don't know.

Mr. Murray: I take issue on the comment regarding disdain for military judgment. I don't know how many of us had disdain for military judgment. My disdain was largely for the arguments that were offered up in defense of the service positions, not disdain for military judgment. As a matter of fact, we had a very distinguished group of military officers serving in the Systems Analysis office, many of whom I respected very deeply. They were first-rate people and delightful to work alongside.

Question: What interface was there between the OSD staff and the staffs outside of Washington, such as the CinCs?

Mr. Murray: We had absolutely no contact that I can recall with the CinCs. They were totally remote from the world in which we worked. A lot of people have said that that still is true and that the CinCs have insufficient influence over what happens in the design of the Defense program. I think that's true. I think that if the CinCs had more influence,

you might find a difference in the allocation of resources. I think you'd probably find less emphasis on R&D and procurement and more emphasis on readiness, ammunition, and such items as training.

To get a little bit off the subject: I think that is an important observation. I think that is one of the arguments for having Dave Jones' proposed reformation of the Joint Chiefs of Staff take place. I think it would give an opportunity for the CinCs to play a more effective role in the PPBS process. I don't think that any one of them can play a particularly effective role by himself. Similarly, I don't think that any particular service alone can contribute a great deal to joint problems. The services are constrained. Each CinC is constrained geographically. For example, CinCPac can't really comment well on Bernie Rogers' needs in Europe. But a strong JCS organization could integrate those concerns, understand them, and make recommendations as to rational allocations. A direct answer to your questions is that we didn't have a lot to do with the CinCs, and that's a bad thing.

Question: I have three observations and a question. Observation one is that, despite this PPBS process, the service percentages have not changed since 1961. I'm not sure exactly why that is. It would be a very interesting study. Observation two is that this PPBS FYDP structure, which you have outlined as yielding an inadequate output, is not a relevant managerial structure. We haven't come to grips with being able to find out what it is. Observation three is that a lot of us owe our education—maybe the Naval Postgraduate School even owes its existence—to the notion created in 1961 that we had to send military officers to be educated to defend ourselves against the OSD staff. I think that, overall, the Department of Defense is far better for that. The question is to Mr. Keller. You mentioned a hundred questions that the Secretary asked. Of course, we get about two hundred nowadays every summer, and if they're not asked by the Secretary, they're asked by the OSD staff. My question is: Were they really McNamara's questions, or did the staff phrase them for him?

Mr. Keller: My impression is that, for the first year or two, they were very largely his personal questions. No matter what you think about the man in general, he has an extraordinary mind. He had an enormous, unbelievable capacity for work, and it certainly is my belief, from all the evidence I saw, that most of the hundred questions in those first two years were generated by him out of the documents that came across his desk. I believe the

questions just naturally arose in his mind. To some extent, they lacked structure, and I think that's evidence that he was personally thinking of them. But, at that point, we were responding to his hundred questions as well as the services.

Dr. Cabe: I'd like to thank Russ and John and Wayne for taking time out of their busy schedules to come and share their experience with us this evening. I think I can speak for the rest of the group: It's certainly been rewarding, and I want to thank you very much.

A COMPARATIVE VIEW OF ARMY PROGRAMMING

by

Major General Max Noah, USA
Director, Army Program Analysis and Evaluation

and

Colonel Thomas P. Carney, USA
Directorate, Army Program Analysis and Evaluation
(DACS-DPD)

MajGen Noah: It's a great pleasure to address this distinguished group, and I want to compliment the Navy and CNA for hosting the session. It's very important, I think, for us to get together in this business. Looking at the art and science of programming--the art of programming is picking what you want to program and analyzing it--I would say the science tends to be more of the analysis and evaluation that we do, although there's a little art in that too.

Basically, our talk today will be on how we in the Army try to go about programming. I'll give an overview of that, and then Tom Carney, who is head of our programming shop that actually puts it together, will give you an inside look at what we do in the Army programming process. We will try to look at the past, present, and future but actually center more about the present of where we're going and reflections, of course, on the future.

Programming is an interesting process, as I say. Most of our action officers over in the Pentagon seem to look at themselves about like that, the PPBS system. **[SLIDE 1]** We meet together in a room--actually, it's outside, in the Comptroller's office--in a Program Budget Committee (PBC), and we go at it. My bosses see it a little differently.

Slide 1

THE ART OF EQUITABLY DISTRIBUTING RESOURCES
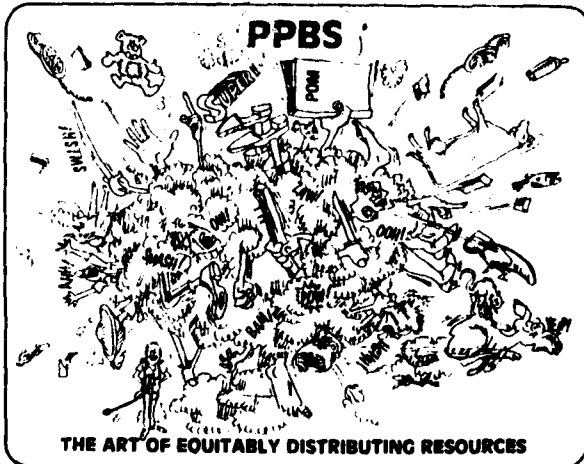
The Secretary of the Army came into the world of PPBS when he joined us, and all the acronyms we gave him sometimes confused him. **[SLIDE 2]** Since that early point in his tenure, Secretary March has become very adept at the language of PPBS. Actually, what we do when we start to poop him up for DRB, which he plays in very well, is to take the guy who can talk to him and who is not normally me--sometimes it's Tom Carney, sometimes it's Dick Mallion, and sometimes it's somebody else he wants--and he goes in and feeds it to him. And when the Secretary comes out, he has it in his head pretty well.

Slide 2
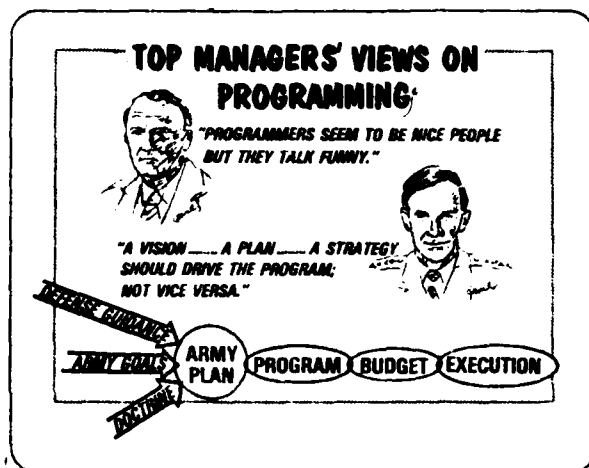
Here (pointing) is the Chief of Staff, General Meyer. Before he became Chief, as the Army's DCSOPS, he recognized that plans, policies, or visions should drive the program, but not vice versa. But his planners used to stay immersed in a different world from ours. They worked in the world of the beyond, and they were not visible when programmers needed their guidance; consequently, we couldn't benefit from their wisdom. As a result, the programmers would make the assumptions as required to program the Army. The planners would ultimately deliver the plan but often long after the programmers had done their work. Then, of course, as many of you know from 10 years back, the budgeteers would take over and shape the real service.

We've tried to get those together and in the right sequence. The Chief has pushed this hard. And he feels that the planning element is very critical. In fact, we've built a fair system, which is sort of summarized at the bottom of this chart, and I'll talk about pieces of that. Of course, there is the Defense Guidance, the Army goals doctor and

shape what we call the Army plan. Then that goes on into the program and budget, which we execute that way.

[SLIDE 3] In the Army, this is the programmers' target: to combine readiness, structure, sustainability, and mobilization. It's a balance that we look for, and that balance is quite critical to us because, if any part of it is out of balance, you can't do something. That's General Meyer's view, that we need to be ready for sustained land combat anywhere, anytime. Of course, we're wrapped around the elements called contingency plans, and we actually shape the Army based on that.

Slide 3
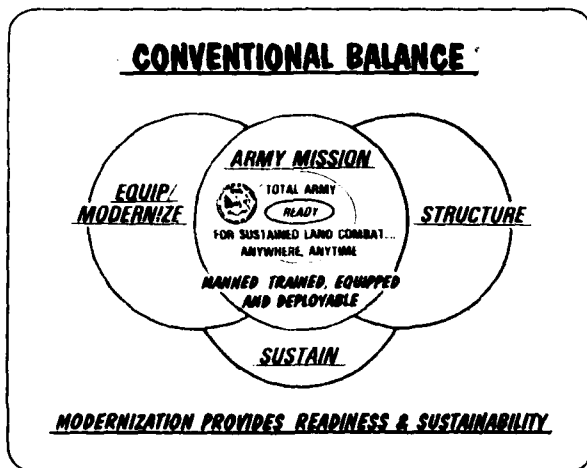
Before I get into the discussion, I'd like to take a look at this question because sometimes it bothers us. [SLIDE 4] I'm not sure the other services will sign up with our portrayal. This view of the Navy and the Air Force is somewhat glib; I will admit to that. But it bothers us sometimes the way people look at us. Each service has a definite characteristic, and I would say, even without considering the customs and traditions, each service programs toward targets. The target I would submit is what I showed before, and the end results are quite different in terms of physical products organization. That alters and affects the way we view ourselves and the way others view us. It affects the way we do business.

If I could characterize our force, I would say the Army is much more homogeneous in a sense than the 10,000 items connote. Our basic cutting edge in the Army is the division. We build a program to support a force made up of divisions. We fight on and around and above the land. We do not deploy ourselves strategically. We are a mass of "eaches." We

have arms and services that shape those eaches into a battle formation, infantry, armor, field artillery, etc. We're represented in a lot of separate parts.

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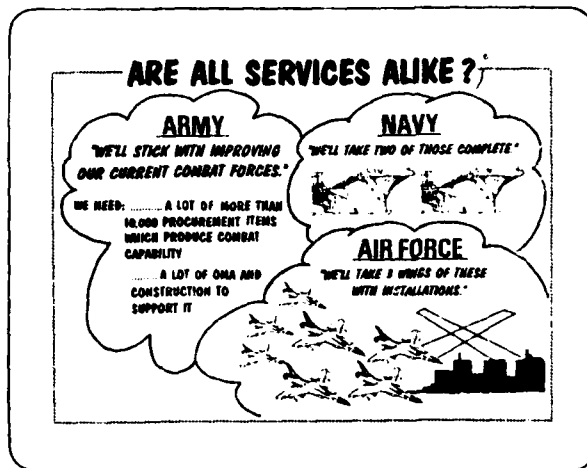
Programming seems to invite a lot of innovative architects who try to shape that. For us who have to do it in the final result—I'll grant you—it poses a complex task, but it is not impossible. We think we are a long way toward solving that problem of how to do a complex task. It evokes quite a bit of argument at times. Notionally, and in a very pragmatic sense, what we see in programming is a power structure that we are attempting to build. And I'm not talking about a power structure in a bureaucratic sense; I'm talking about a power structure that is able to deter war and, if necessary, go fight it, once we get on the land where the Navy and the Air Force put us. It's got a lot of dimensions, it's got millions of eaches.

The four pillars that we in the defense program use and that we are measured for in the final result in a sense of priorities are shown up there at the top. [SLIDE 5] We have to fit that into this force. Readiness, of course, is our first priority. Capability—I would rate that both qualitatively and quantitatively, both in a modernization sense and in a fill-up-before sense: How big a force do you need? Of course, we have something else to worry about: Once we get somewhere, how long can we sustain that force there?

Filling in that "Notional" box is the problem we have basically on the programmer's side, where we go into a session looking at a Defense Guidance before it's written and try to make sure we meet it after it's written. Those items in there, the eight items you see

listed from "Structure" down through "Sustain," you'll see again. We use those as checkmarks or boxes as we go down, making sure that we've got our program together for the Army.

Our management concept in the Army **[SLIDE 6]** is shown in these three tiers. First, on the goals and objectives—which are primary, of course—I would say those are formed up in a participative manner quite well with our MACOMS. For those of you who are not familiar with the Army, we put together in almost every organization many of the same different functions. So, the infantry doesn't go to war by itself or the engineers, or the signal, or whatever-have-you. Those (infantry, engineers, signal, etc.) are in each element.

To do that, we have a series of organizations. TRADOC, which is our Training and Doctrine Command, puts together the doctrine and performs the training. That marriage we found to be quite useful, as have other commands in other services. DARCOM is our systems command, if you will, Defense Acquisition and Readiness Command. The products that one of those helps design the other produces, in both manpower and materiel. They spill out into our operating commands. USAREUR is our largest. FORSCOM, which we call the world's largest reserve here, in the States, and Eighth Army, are examples of the MACOMS. Then we have MACOMS, such as the Army Communications Command, Intelligence and Security Command (INSCOM), Corps of Engineers, and others that have specific tasks to do in that arena. Those are the MACOMS that participate with us when those goals, objectives, policies, and plans flash up.

When we go into programming and budgeting, we go more into centralized programming and budgeting. That does not mean we do it with the door shut, although it has in the past. It's a problem we've had in the past, not being able to recognize the MACOMS' world. It's one we hope to open some this year, but not necessarily have them vote on the final result as to where we go. That is done because of the rapidity with which we have to move through the program process. It is a much more centralized program in budgeting, yet visible to the degree that it is propitious to let the MACOMS look in.

Execution is decentralized. **[SLIDE 7]** Again, you go to a command execution, where the commander in the field becomes more the important one to do what he has to do—of course, within guidance. The game is played between those three bars. The goals, policies, and objectives I would highlight because we've tried to do that this year. To bring this
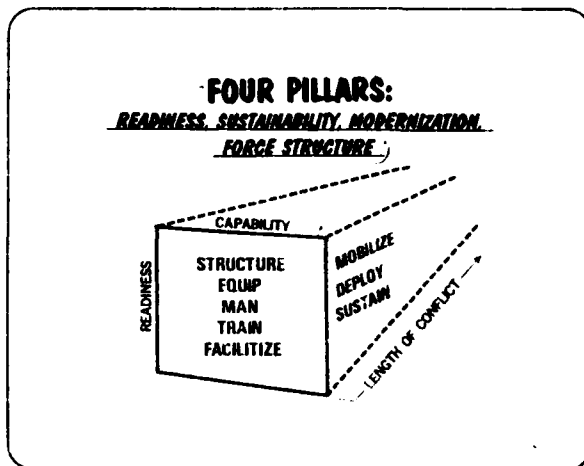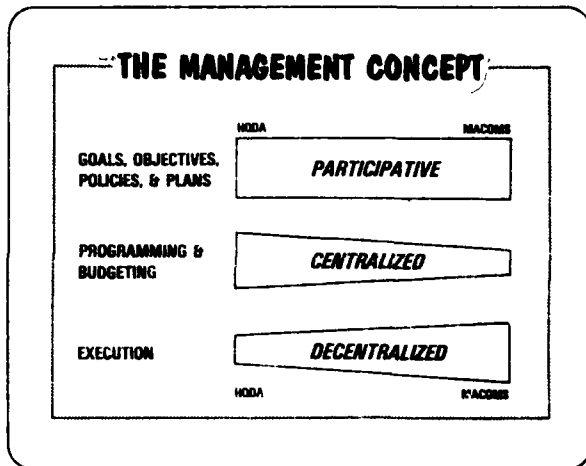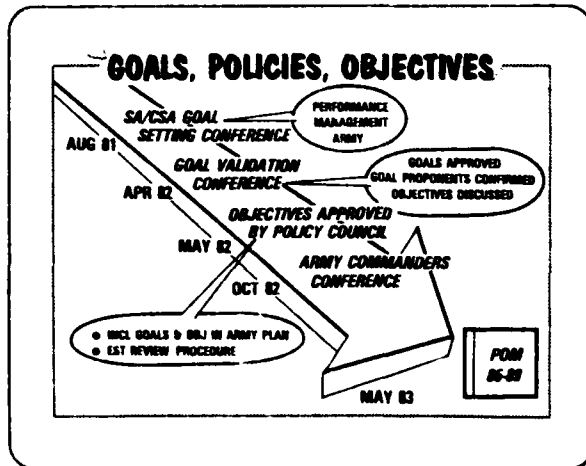
together, you have to have a common sheet of music. We came up with seven goals from a process that started a year ago August, out at the Xerox Center, where the Secretary and the Chief got both the Secretariat and the Army staff together at the principal level. By last spring, they had put together an approach toward Army goals.

There are seven of them, as I mentioned; Tom will show them to you later on. But, basically, there are some fairly complex ones to address. They're not necessarily to build an X division for us or anything as specific as that. They're more the goals of standards of how you'd like to build something. For instance, we have a leadership goal. That's an interesting one to try on for size if you ever want to go out and try to build an hour's presentation: "How to do a leadership goal." My predecessor quite removed, General Max Thurman--who's sometimes famous or sometimes infamous--did a pretty good job of that.

"Human goal," that's not too hard. That's people goal, materiel goal, etc., like that. But some of them were fairly complex. The Chief assigned each of those goals to one of our three-star staff members--goal tenders, if you will. That was done, and they reported out on that in April. In May, those were approved by our policy council.

Then we took those goals and used them as a framework and actually reported out tasks at the commanders' conference and had the Army commanders--who had never played on those goals before--report on what they were doing in those arenas. Those are the MACOM commanders. And there you're talking about a table full of 25 folks or so, with 9 four-stars out of 12 or so, sitting there and going at the business on the framework of goals. And it worked quite well, I must say. This year, we're going to try goals in a fairly complex prioritizing scheme in the Army programs.

Standard chart. **[SLIDE 8]** It's our cycle, as it is with all services and agencies--not atypical. It fits in as well as it can with outside and inside input. We build an Army Plan, starting in September, and have that finalized. Again, notice that we don't put the Army commanders per se into this stage, but we do let them have a succinct input called the PARR, which is the Program Analysis Resource Review.

In the Army staff, we go through a drill that Tom Carney will talk about, and then the Defense Guidance arrives. Actually, we start working on Defense Guidance much earlier.

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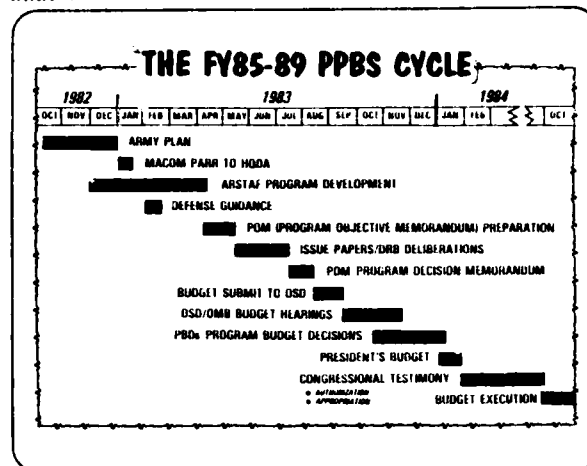
The big thing that does arrive here--and causes us a problem and probably is a subject of many questions, etc.--is Fiscal Guidance, the bottom line, or the top line, or whatever you want to call it. So, we have a lot of work to do before that time. I would like to have it sooner. Everybody would. I think that sometimes you have to recognize the flip side of that record, realizing that the big guys don't want to make early decisions. We go into the POM preparation from April to May. That's a time out, guys; the decision is made, we're going to sit and write and do our thing. Then, of course, we go through the rest of the cycle, which is common to all the services.

Defense Guidance means a lot of things to a lot of people. **[SLIDE 9]** First, I would say to the strategist: We're thinking of global conflict, or the chance to deter war

Slide 9
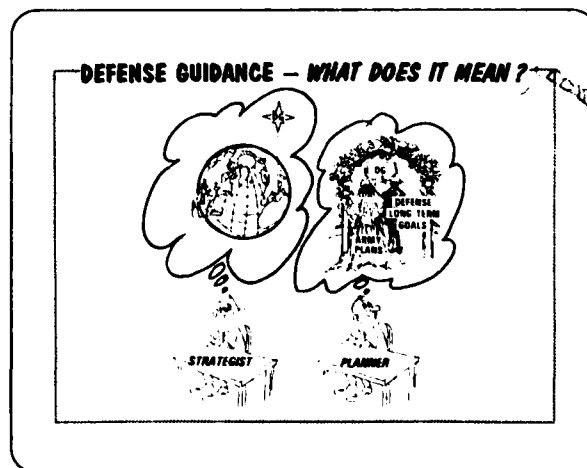
or, if necessary, to fight. To the straight planner himself: We're taking those long-term goals and putting them together. [SLIDE 10] But, to the programmer—and we're entering that stage right now in the Defense Guidance—it's quite a different thing. It appears in the end result, but we also see it, right from the beginning, as a load of have-to-do's—in the jargon, "must funds," if you will—with a small sack on our back of what to do it with.

Now, that is quite a simplistic view, and I don't intend to get across the idea that that's the only way we would look at it. But we do have to concern ourselves with that. And the word "affordability" steps in here. Determining final affordability is much above my pay grade and perhaps that of anybody else in the room. Maybe not; I don't know. But the bottom line you have to work within and work toward, if you can, is to be ready to tell people what it takes to put together a defense budget. In our sense, the process of developing the Defense Guidance is actually participative management. As I tell everyone, you get quite a bit with that. You not only get the goods—there are a lot of goods, with that—but you also get the bads. You know, like: "Do you want me to take your left arm off or your right?" or things like that. So you have to answer those questions. That's a problem we face, once we get into the business. You can't always blame it on the other person.

We get a lot of help in forming our guidance. [SLIDE 11] We have the joint planners' view: the Joint Intelligence Estimate for Planning (JIEP), the JSPD, and the JPAM. We also have Army products. We have a long-range appraisal called Total Army Analysis. This is an assessment based on war gaming that is done by our Concepts Analysis Agency. This analysis leads to the development of our structure. That is our first thing, to settle our structure to meet a threat. That goes in as one input to the Army Plan and POM. Another input is the doctrine. [SLIDE 12]

A little aside here on the doctrine: Obviously, if you have to have a war, you're going to fight it; you'll put something together and go to it. Our Air/Land Battle 2000 actually came out of a substantive dialogue between TRADOC and Tactical Air Command at Langley a few years ago. For instance, we had to consider a way to stop the Soviet attack in the way that they go at it in this envelopment doctrine. We, therefore, had to come up with something to counter that.

This has, just now, really started aborning. Although, it was born a year and a half ago in the Army—and, I would say, in

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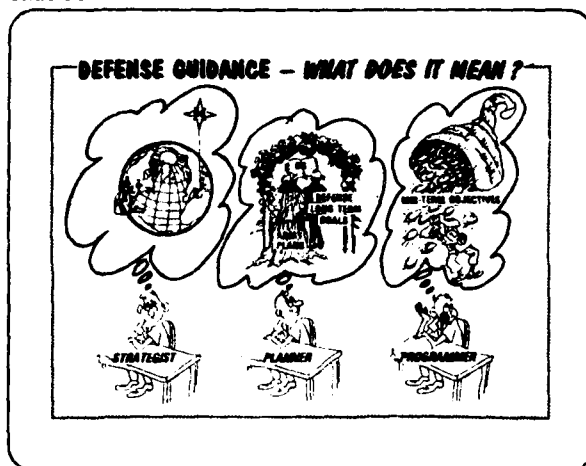
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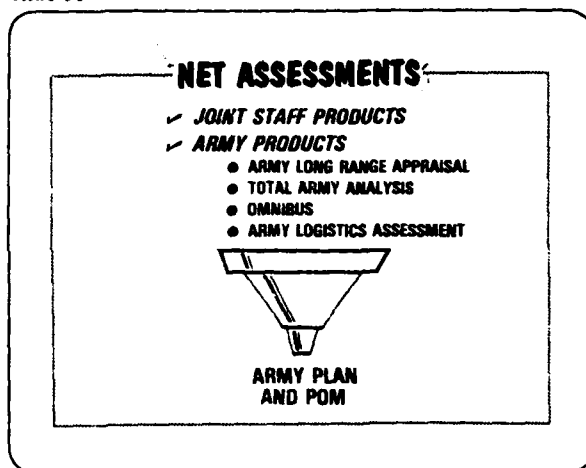
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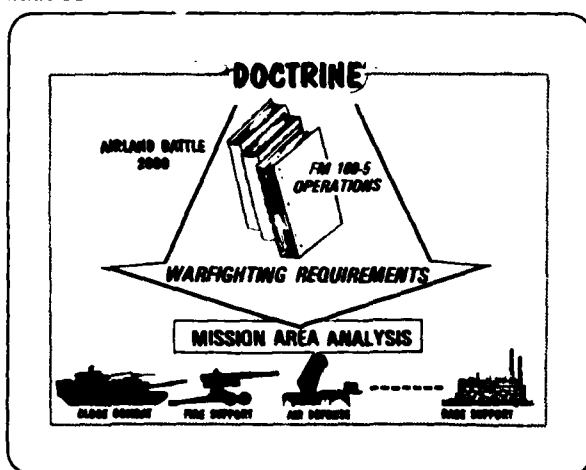
ether parts of the Department of Defense—it's starting to take hold now. In fact, Ben Sherman's magazine has the NATO deep-attack article in it this month. I just saw it in the last couple of days; I haven't read it yet. You know that General Rogers is starting to talk that way in Europe. You also know that Europeans are not that wild, it appears, to go into this. There are a lot of things in that air/land battle from the general defense, position, status that the leadership in Europe are either for or against. But I would mention that it is a blueprint for us, and it's starting to shape the way we go. Obviously, when you have the choice between the howitzer and a better way to look out at this blueprint, you have to consider both; before, you did not have the opportunity.

FM100-5 is our "to fight" manual. We're on the second edition of it right now. And, of course, there is the mission-area analysis. I mention mission-area analysis because it's going to come up today in two contexts. Mission-area analysis, which flows from Department of Defense directives, as done in the Army schools in twelve mission areas. One mission area, for instance, is close combat; another is fire support. There are many others. As the former commandant of the engineering school, I can tell you we're working on one called "Engineering Combat Support and Mine Warfare." Work in these areas is a quite substantive undertaking.

The mission-area analysis was also used last year as our primary prioritizing guide as we went into our POM. It did not work too well. As they said, "As soon as we got everything prioritized, we showed it to the three-stars, and all the pet rocks floated to the top." There was a reason for that, I would contend, in that mission-area analyses have some implicit assumptions in them. In other words, you've got a country that's ready to provide you with almost anything you need because the war is on.
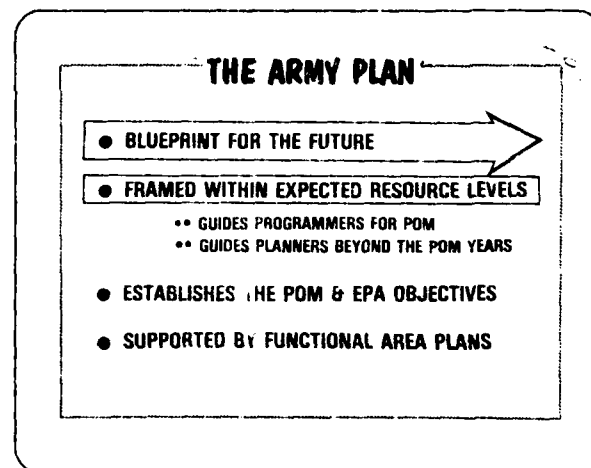
And, number two, you've got an economy that is dedicated to that. That isn't the way today, as you well know. You've got to fight, convince, justify everything you need, and you have a substantially more constrained budget than we want. We've got our Congress to convince. They've got political problems, one way or another, that have to be considered. We've got contractual problems with industry. All of this has to be considered. So, this year, we will try to broaden our look at prioritization, although mission-area analysis is one of our biggies as we go into the business.

About 2 years ago, our planners came up with the way they wanted the Army to go, but still the programmers were the ones that had to pull it out of everybody as to how we were going to program the Army structure. [SLIDE 13] During the last 2 years, we started in on what we call the Army Plan, which right now has grown into a fairly good document. When I say "fairly good" rather than "superb," I'm saying it from a programmer's view, in that they still would like us to get a little more money for them to do the job with. I'm referring to planners versus programmers. I don't object, as long as they don't try to lead us too far, because that plan goes out to our Army and MACOMS, and they say: "Oh, this tells me to do this; therefore, I will put resources into it." The resources come in, and we get a stack of this much to do, with that much to do it with. As usual, the programmers get to be the bad guys when you start slicing off. But we've helped solve that one, too, because the guys who wrote the plan are also the prioritizers of the Army. So, we say, "Nope, they're the bad guys." (That's not really true, we're not in the business of pointing fingers.)

Slide 13

THE ARMY PLAN

- BLUEPRINT FOR THE FUTURE
- FRAMED WITHIN EXPECTED RESOURCE LEVELS
  - •• GUIDES PROGRAMMERS FOR POM
  - •• GUIDES PLANNERS BEYOND THE POM YEARS
- ESTABLISHES THE POM & EPA OBJECTIVES
- SUPPORTED BY FUNCTIONAL AREA PLANS

That's sort of a colloquial context, but the DCSOPS in the Army staff is also the prioritizer of the Army—really, like us all, he is the recommender, because the key prioritizer is the Secretary or the Chief. And they play very actively there.

You see what it does. The Army Plan is a good document. It's something we've needed for a long time. It pulls together everything we do into a fairly decent set of guidance for

the programmer. It does it about as well as we can. There are certain things we can improve and, with that, I would ask the rhetorical question! [SLIDE 14] This slide is actually for you to stare at while Tom comes up, and I will sit down.

Slide 14

DO ARMY PROGRAMMERS HAVE ENOUGH GUIDANCE??
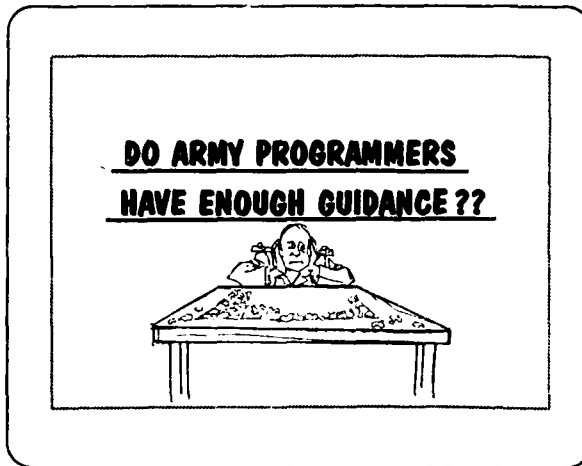
Col. Carney: Put me into context. [SLIDE 15] If you are with the Navy, I do what Ray Walsh does. If you're with the Air Force, I don't really have a direct counterpart, but Dale DeFrank comes closest. And if you're from the Naval Postgraduate School, I'm the guy they still talk about that, after 2 years, never learned to spell "stochastic." I owe a great debt to them, though. I took ten strokes off my handicap while I was up there.

Slide 15

ARMY PROGRAM

PROCESS
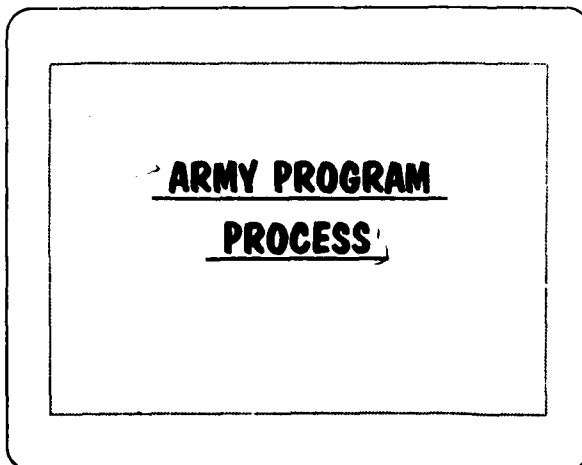
General Noah gets the exciting part, and I get the nitty-gritty about how the Army staff puts all this together. [SLIDE 16] The basic steps on this yellow brick road leading down to the POM are basically in the October timeframe, and of course, it starts much, much earlier. In the October timeframe, we have to review and set the force structure as the start point. This does not mean that the Army's number-one priority is force structure because we do it first; on the contrary. What we need, to drive our other computers however, is an early decision as to what this start point, force structure, will be. Because of the complexities of the Army that General Noah described, the basic building blocks are that structure. The computers drive out the resource and personnel requirements as we move on down the road.

There will be a recalculation of personnel and equipment requirements. Of course, guidance will be bouncing up against that structure that we set. But don't forget that it's a little-bitty old guidance. We're watching very carefully as Section IV of the Defense Guidance walks into that, to make sure we're in as close as we possibly can be.

Slide 16

MAJOR STEPS IN PROGRAMMING

| REVIEW AND SET STRUCTURE START POINT | RECALCULATE EQUIPMENT/ PERSONNEL REQUIREMENTS | ANALYZE BASE PROGRAM AND CHANGE PROPOSALS | REPRIORITIZE | REVIEW PROGRAM BALANCE |

OCTOBER JANUARY FEBRUARY MARCH

GUIDANCE

YELLOW BRICK ROAD TO THE POM
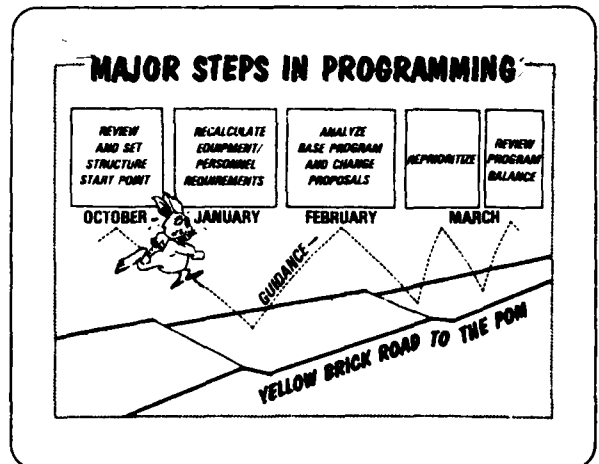
We then go ahead with those recalculations. Another major point where guidance plays a major role is the analysis of this base program and all the change proposals that will be coming in. I will describe this later. We go through a process of reprioritization in the March timeframe. Guidance plays a major role. Then, finally, there is the review by our top-level committees, boards, Secretary, and the Chief before the POM is locked and

written up, and the data is squared away. Those are the major steps as we move on down toward the POM.

[SLIDE 17] The building blocks from which we put this program together are called PDIPs, or Program Development Increment Packages. I would not put the PDIP into the context of a managerially relevant construct, as has been discussed previously. But we do find it an interesting way of going, and it's not unlike the process briefed by the Air Force yesterday. We are not looking and building our program toward the appropriation directors. Rather, we are looking toward increments of capability or new initiatives or old initiatives in terms that are meaningful to decision-makers and prioritization committees on such things as the MLRS rocket.

A PDIP on the MLRS rocket will, in fact, include all appropriations, all the resources required to fill that particular system over the 5-year period. The National Training Center, in turn, will have the resources of all appropriations.

So, it's not program directors who are building these PDIPs but, rather, functionally oriented elements of the Army staff and subordinate commands of the Department of the Army. The programmer, then, is viewing across appropriations, but we have an integrated data base which will allow us to then spit it out in terms that are meaningful to appropriation directors when we go to the budget timeframe.

[SLIDE 18] Why PDIPs? Well, clearly, we were sort of forced into the PDIP business under the ZBB and ZBP notions of the previous administration. Why do we continue them? Primarily, because we find that it is a good way to go. It has accommodated the way decision-makers think in these functional increments, if you will. It does wrap up the total package resources required to field the particular capability represented by that initiative. It does give us a certain total cost visibility. I use the word "total" carefully because we are talking about an increment on top of what is going on in the field. We are not talking about the BCE that I have to take that MLRS program up to and defend, whether it is at a DSARC or an ASARC. We understand that. It is the incremental resources required to accomplish the given objective.

Does it facilitate cross-staff coordination? This is a very important aspect, because, as the battle in the program review timeframe grows hotter, things get turned around very fast. In late March and early

April, I am the owner of the data base who has to assure the leadership that this data base is reflecting their decisions. And so, when the decision is made to trim the MLRS, for example, a little point of contact--a PDIP POC--will come running down the hallways and try to get that change into the data base. I will not accept that change unless he has gone through all those other folks that have an interest in it. The engineer will be interested to know that it has been trimmed, and now he has to change his construction program. The DCSOPS folks and all others will now have to change the training plan and other things. So, it is a very useful tool toward assuring staff coordination and, of course, program prioritization. As the Air Force said yesterday, these incremental packages assist in the sorting.

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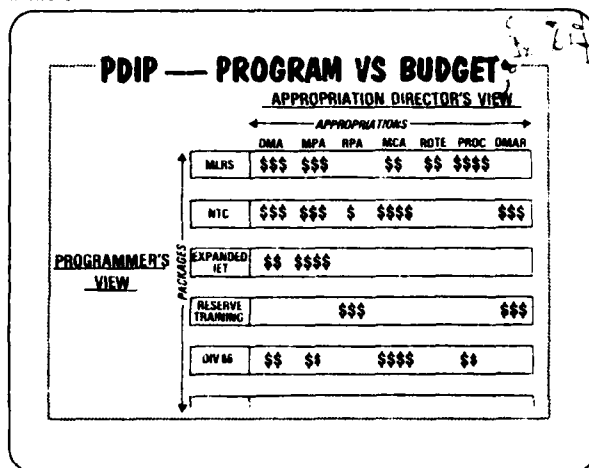
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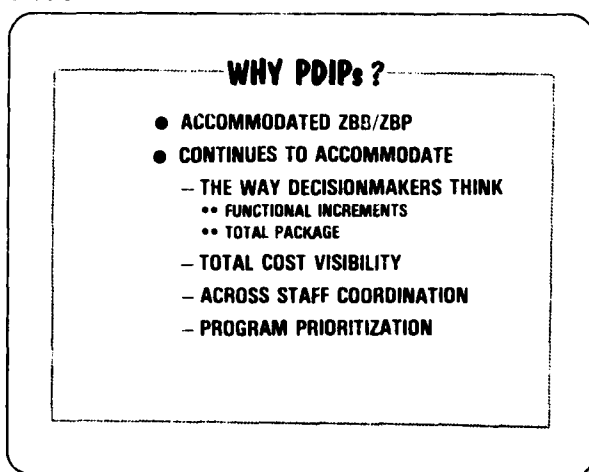
[SLIDE 19] Where do they come from? Well, first of all, they come from the existing Army program. We consider, for stability reasons, that the existing program carries a great deal of weight. There will be a stack of PDIPS in our data base that will reflect the January FYDP, the last decision point which we are building the program from.

Slide 19

WHERE DO PDIPs COME FROM?

FY84-88 EXISTING ARMY PROGRAM

IDEAS FROM
● DEFENSE GUIDANCE
● CDRS' CONFERENCE
● ARMY PLAN
● TOTAL ARMY ANALYSIS
● POM ASSM'T LTRs
● CINC's ASSM'T
● MACOM PARRs
● ARMY STAFF
● CONGRESSIONAL/ PRESIDENTIAL INTENT

FY85-89 NEW PROGRAM

But there will also be a lot of new ideas—late-breaking extras—that will come floating in from those various agencies. Clearly, Defense Guidance will have new things to do, particularly in Section V. They will be PDIPized, if you will. They will be given a special number to give them special visibility. But they won't necessarily make the program. They will compete in the prioritization process; so, the Army will have to come to grips with whether or not they will be in what we call "full compliance" with Defense Guidance.

The commanders' conference that General Noah mentioned generates all kinds of new ideas that the programmers have to deal with. The Army Plan gives us goals and objectives that we have to accommodate. The Total Army Analysis, that war game that is taking place out there in Bethesda, will generate new requirements. POM assessment letters also play a role. They are another major input from our major subordinate commanders, telling us what they think was wrong with the last POM. The CinC assessments, which come in as they talk to the DRB or as they send in their messages semiannually, come out with new ideas. The MACOM PARRs, Program Analysis Resource Review documents, on 10 January will give us new ones. The Army staff will dream up even more.

Even the President will tell us to do something with the BMD program. Or Congress, as it has in the past, will tell us to do something else.
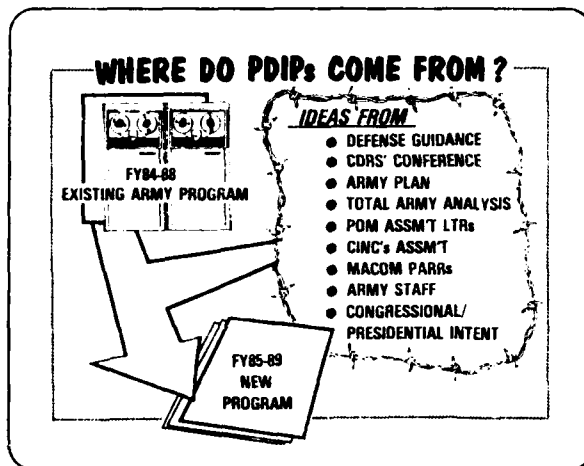
I don't consider Ronald Reagan a PDIP POC—someone will represent him—but he generally competes very successfully in the Army program process.

I have the barbed wire around there, because, in fact, these things are not automatically accepted. They are all going to displace something that is in that January FYDP, and they are going to have to crawl through a minefield (called a prioritization process) to, in fact, displace something as we walk down to the next POM.

What have PDIPs done? [SLIDE 20] There are about 818 of them in the data base right now. They represent 94 percent of the PDIPs, something-concrete-and-identifiable—and 46 percent of the funding as something-concrete-and-identifiable.

Slide 20

MARGIN VISIBILITY

FY84-88 POM
● 818 PDIPs
● MARGIN 94% OF POIPs, 46% OF FUNDING
● OVER 500 PDIP POCs

FY81-85 POM
● MARGIN 20% OF FUNDING
● POIPs....450

770 PDIPs

$

48 CORE PDIPS

FY84 FY85 FY86 FY87 FY88
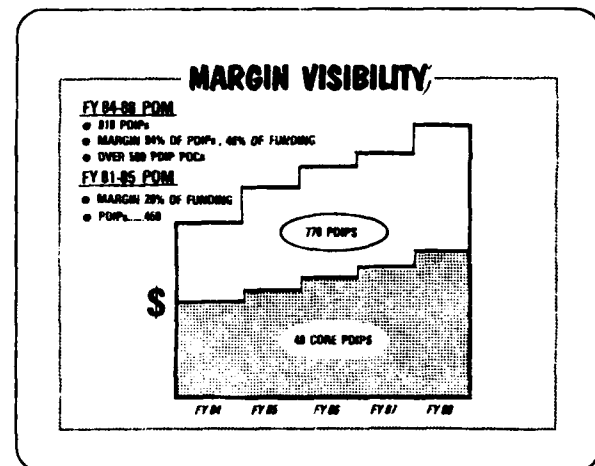
There is the rest, rolled into what we used to call the unidentified core, or that which is not on the margin and for which we don't necessarily, in program building, have a lot of visibility. Clearly, the budgeteers want to have visibility on that, and they use their own systems. That is considerably different from where we were a few POMs ago. We first started out in the PDIPs business in response to the CDPS (Consolidated Decision Package Sets) and the prior type listings that OSD required us to submit with our POMs and budgets. We had only about 20 percent of the

funding covered in incremental packages at that point in time, with about 450 PDIPs. So, we have moved progressively toward making more and more of this program visible in PDIP form, and we are sort of happy about the direction the program is headed—understanding, of course, that every time you add a PDIP you complicate the data management problems. You have added a little more complexity to the Army staff's problems. With 500 PDIP FOCs running around in the building, it gets to be a pretty complicated system keeping the data base honest.

Who are the players within the Army? [SLIDE 21] Clearly, the Chief and the Secretary are the number-one players. The major step of placing the Secretary on the Defense Resources Board has, in fact, very much increased his interest level in program building and budget building.

Below them is the Select Committee or SELCOM—basically our three-star vice presidents of the corporation. The same as the major resource committee, representing the Air Force Board that you heard about yesterday.

[SLIDE 22] Below the SELCOM, sit the two-star committees: the Program and Budget Committee and the Strategy and Planning Committee. These are the two major subordinate operations of the SELCOM. For a little more visibility within the Army, then, there are both a SELCOM and a Joint SELCOM. The Vice Chief of Staff chairs the SELCOM, and when it is joint—it is always joint for the major resource events, such as POM submission—he cochairs it with the Under Secretary of the Army. The key three-stars, the special staff two-stars, the Director of the Army Budget, and General Noah, the Director of Program Analysis and Evaluation, are members of that SELCOM.

Committees below them are very critical. The Program and Budget Committee is a two-star committee, cochaired for budget and program continuity purposes by the Director of the Army Budget and the PA&E. These represent the principal two-stars across the Army Staff and the Secretariat. Below that, is me, chairing an 06-level of PBC. On the planning side of the house, the assistant DCSOPS, General Long, chairs the Strategy and Planning Committee, basically concerned about putting together the Army plan—dragging all of these inputs that General Noah described, the kicking and screaming, into a document, a consolidated document to give the programmers guidance. There are principal two-stars represented on that committee as well, not always the same faces as in the PBC, but all the ARSTAF (Army Staff) is represented and the Secretariat plays, too.
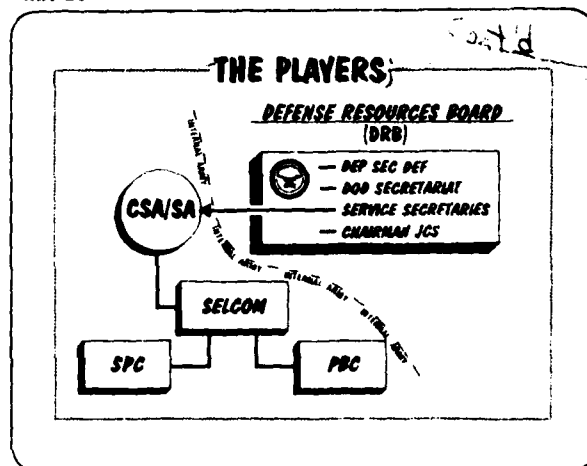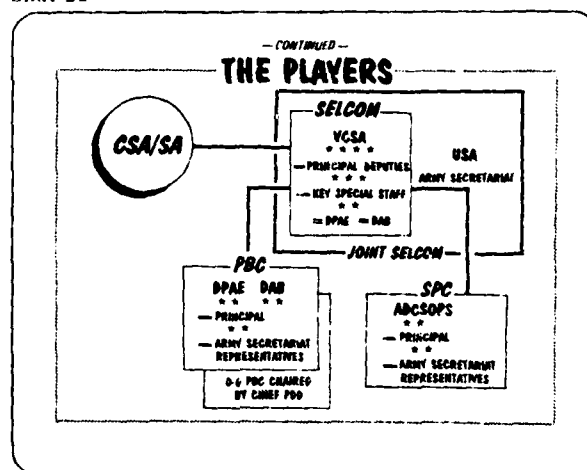
[SLIDE 23] This is an appropriations break, where the resources stand in one fiscal year. I am going to use this as a sort of notion about introducing the process on which we build the program. For example, 28 percent of the resource bag that we are going to get is probably going to go—give or take, a point percent—toward the military personnel. So, once you have established that start point structure, you have essentially established 28 percent of the Army resource bag. Better than 90 percent of this represents pay for people; about 10 percent is the support of those people. Very little flexibility in all that. You can vary your bonuses a little bit, but there aren't big chunks available for reprogramming, once you have established that structure and have to man it. Over on the operations side, representing about 32 percent of what we are putting out nowadays, there is

64

some flexibility, but you have to keep that level of effort going to keep the readiness high in that structure that you have established.

There is some flexibility, and I will describe how we program that. Clearly, we all recognize that major flexibility--we don't like to think of it that way--is on the investment side of the house. For instance, military construction is always on the margin, always trimmed at every level. The research and development for the future of the United States Army and the equipment we are going to buy for both the readiness--the things we have on the ground right now--and our vastly needed modernization program fits into the 40 percent bag.

COST OF MAINTAINING THE ARMY FY 84
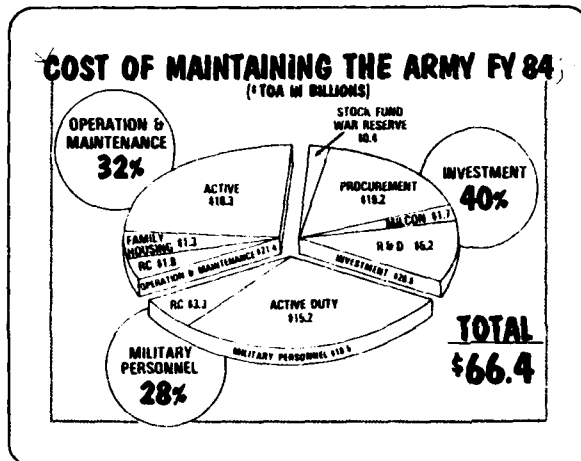
[SLIDE 24] Let me describe the force structure process, and we will walk down that yellow brick road as we go. First, there are inputs that go into this big computer war game called Total Army Analysis that takes place out in Bethesda with our Concept Analysis Agency. On a quiet night in Maryland, you can hear the sound of guns over there. The battle lasts for almost 7 months; so, it is very important, and I point out that this Defense Guidance scenario will be based on last year's scenario. The JCS and Mike Leonard's (OSD, PAE) folks have just tweaked it a little bit, causing palpitations of the heart out there in Bethesda. Because, CAA brings you their product, and you say, "Sorry, go back and do it with a new scenario." We all have a little problem with accommodating that.

That is one of those problems of simultaneous planning and programming, rather than the notion of heel-to-toe concept. So, you have to go through manual manipulation whenever the scenario changes. They will be doing
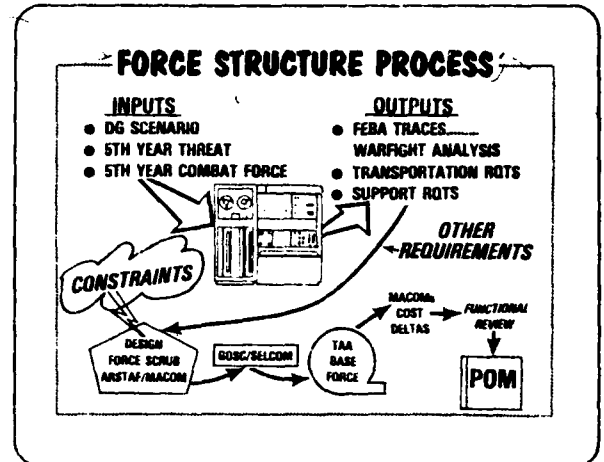
a war game against the fifth-year threat in the combat force, and they will be fighting the DG scenario--the global operation. Kicking out of that will be a FEBA trace. You know how well we held off those nasty guys, and you can do all sorts of warfighting analysis based on that sort of thing, but don't forget that to start over again takes you about 6 months.

Transportation requirements. The delivery reqirements will go over to the data bases, then over to the JCS, who will do the calculation of air and sealift requirements and up to Debbie Christie in OSD. Similar calculations for support requirements will go, as well. What will fall out of this war game will be how much ammunition is required to support unit requirements, and, in turn, how many truck companies will be needed to move that ammunition. Many other things are learned from this Total Army Analysis.

Then there will be other requirements that will come in toward our force structure. Basic things that don't go to war have to have an opportunity to play. The Training and Doctrine Command will tell you that it is really smart to go one more week of individual entry training, or DARCOM will say, "I've got to have another PM shot." So, all those requirements that don't play in a war game get laid on the table by our subordinate commands.

They then come to the Pentagon for the big decision meeting of the design force scrub, and that is where they are struck by constraints. We have to put an initial notion on the endstrength of the Army in order to constrain this force structure, because that war game is going to generate requirements. So, that scrub, that force structure, and all

the MACOMs that play go to a general officers' steering committee (GOSC). They go to the SELCOM (just as they did on 1 November), and what falls out of that is the base force, the POM start point, not the POM force. It is going to get jiggled all around between now and next May. But the start point is the base force on which an awful lot of things get generated. I will describe some of them.

We send those changes to the force—the deltas to the force structure—out to the major commands, and we say, "Tell us in your PARRs in January, what's the change in operating monies, what's the change in construction requirements, generated by the change in the force structure?" Force structure then goes through that functional review process that I will describe later and ultimately gets put into the POM.

[SLIDE 25] The equipping process, how we generate our requirements. Well, our (AAO) Army Acquisition Objective is basically made up by IIQs or Initial Issue Quantities. That is, those end items that have to go over there and fill that force structure. The 180-day war reserve and POMCUS requirements, maintenance floats, and operational projects (such as something that has been authorized by OSD to go over and above the Army's Requisition Objective—like, a special defense acquisitions fund to perform military sales for one thing or another). One of the hardest calculations is the IIQ. The TAA base force that I briefed just a minute ago has a table of organization and equipment (TOE). Each of those little truck companies has a TOE, and each one has a BOIP, or a Basis of Issue Plan. In other words, these are the things that we are going to give these guys. That gets multiplied by the authorization document system, and, basically, what falls out is the requirement for equipment in units. That's the requirements generation for end items.

Distribution programming. Now you have to figure out how to distribute it. We take that Army Acquisition Objective and subtract what's on hand, and that gives us our shortage. Bounce that shortage against—now, this is important—the previous procurement program, because we haven't built a new one for the POM yet. Bounce it against the previous procurement program and fill the shortages in a DAMPL (Department of the Army Master Priority List) sequence, which says basically that the first to fight is the first to be equipped. It doesn't say, "Fill the Active Component and leave the National Guard to the end." It does not say that. If the National Guard round-up unit is first to go, it will be equipped first.

The total Army equipment distribution plan is voluminous. It fills about nineteen safes, represents millions of pages of information, and is absolutely critical to MRA&L, who asks frequently for 1906 work. (I'm being facetious.)

That is the Army equipment distribution plan. It has some problems, and it will never be exactly right, because—don't forget—the Defense Guidance scenario of last year drove the structure, and the on-hand shortage was calculated off the current or last known procurement program. So, it is never exactly right; besides, it takes about 6 weeks to run one of these things.

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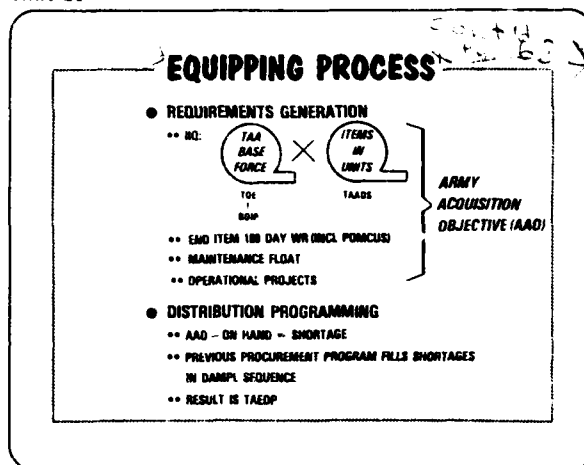
As we continue in the equipment process, [SLIDE 26], we look at the War Reserve Requirements. Secondary Items, basically, is the peacetime rate of what we are using secondary items at, times a factor (judgmental factor, granted) of what we think the work time consumption of those things will be.

For new items that have not hit the field yet, items for which we have no experience information, we go to like kinds of equipment, and we ask the PM for some sort of analysis. That is how we come up with a requirement of wartime secondary items and developmental types of equipment. For ammunition war reserves, the requirement comes out of TAA warfight. The WARF rates, or the War Reserve Factor rates, get input into the machine. For instance, the machine input is the artillery firing for 7 months, and it calculates the 5-day requirement for ammunition. The output, as I say, is the 5-day usage rate.

Basically, up to this point, I've talked of the requirements process. Now, what do we do in the act of deciding what it is we're going to buy? The Army Material Plan (AMP) updates the cost and quantities of the January FYDP. The DCSRDA, (Deputy Chief of Staff for Research, Development and Acquisition) some of our PA&E analysts, some DCSOPS analysts, in fact, go out to DARCOM subordinate installations, and say, "Here's your latest plan as it is reflected in the FYDP; what do you think about that?"

Of course, they always think it's not enough. But they have got to prove it, face to face. They've got to say, "Fact of life says you can't put them out in those quantities."

We've gathered this new data in the December-January time frame, into what is called the Army Material Plan. It is the cost-quantity relationships that will exist at that point in time that will be a requirement to change the Army's previously reported procurement program in some way, shape, or form. I'm talking about building it for this POM, now. It is done again in the summertime in preparation for more accurate information in the budget as well.

Then there is an analysis that goes on in the January-February-March time frame, of what we ought to change in this procurement plan, on the basis of the results of the TAA.

Where are the shortfalls? Of course, we are a long way off the AAO, which is based on a 180-day war reserve calculation. But let's take a look at the shortfalls in the units--the IIQ shortfalls and the War Reserve 30-day shortfalls, or whatever it might be--and let's see how we might adjust that program to address the short spoke that the Air Force talked about yesterday. Naturally, business-sense adjustments also have to be made, and the section on the War Reserve in the Defense Guidance told us it's not X any more, it's Y. All of those things take place.

This procurement process is done by an equipping panel. The prioritizing of the equipment is done by the two-star in the DCSOPS, over in the Requirements Division, DAMO-RQ. He shapes it; lots of people have interests. Primarily, the DCSLOG arena is worried about distributing this equipment--certainly in the TAEDP (the Army Equipment Distribution Plan) because they have to go out and execute. But, even beyond that, the Training Doctrine Command (TRADOC) will bring the warfighting doctrine notions to the table, while the DARCOM will come and talk about executability and other things.

So, an awful lot of people play in the rehash, if you will, or rebuild of the procurement process. But those changes, once again, are still wrapped around that barbed wire called "prioritization," and to displace something that's in the January FYDP has got to be justified well above the colonel level.

Then, when that's all accomplished, equipping one function of the Army is going to have to compete with all other functions of the Army at a functional review that I will describe later.

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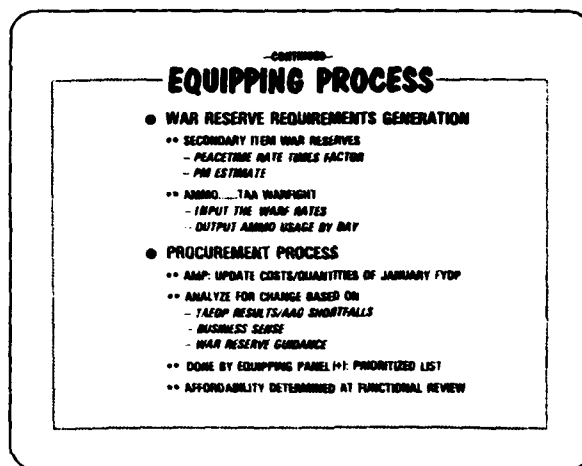
Let's turn to the manpower process. [SLIDE 27] First, generating the wartime manpower requirements. That Total Army Analysis, the big warfight, generates casualties. It also generates the force that the SELCOM approved on 1 November.

You also have to go through a calculation to bring that force which is not all at ALO-1. This is a force of units left intentionally at ALO-2 and ALO-3 at the base, wartime requirements. Multiply them by a factor to get your ALO-1 force, get your manpower requirements out of that, and add your casualties--keep in mind M-day plus 30--and you will find out how many bodies you need to fill your units.

Compare that with the pool of available manpower: your individual ready reserve, your inactive National Guard, your active and reserve components, and your retirees who are coming and getting their orders. They know where they are going to be on M-day. Compare that, and do a very fancy algorithm, called subtraction, and what comes out is a time phase pretrain shortfall, as well as the mobilization training requirements. TRADOC will

now understand a little better that at M-plus-such-and-such, they are going to have to accommodate the revival and training of such-and-such in order to try and solve the further-down-the-road pre-train shortfall.

To continue: We look at the peacetime military. [SLIDE 28] Driving out of TAA, once again, is the force structure start point. The requirement, if you will, goes through a machine and compares manpower programs using linear programming. This fancy linear program will generate yearly losses, yearly gains, your promotions, and your reenlistments. From that, we'll derive recruiting goals, reenlistment goals, and training requirements.

Policy will play a big input to the conflict. Some policy maker is going to have to say that the career force will be 51.2 thousand, not 51.1 thousand as it was last year. That drives bucks, that's a policy input in this machine. Policy may say we are going to change the Recruiting Command in some way, shape, or form because, for some reason, the computer has generated a big requirement out here for accessions. Policy will drive the bonus program; policy will drive a lot of dollar requirements, generated basically out of that force structure start point, as well as those tentative decisions that get made as we build the program.

[SLIDE 29] Manpower Process, Civilians. Well, the civilian requirements come from all the things I discussed before. They're in the current program. The Army Staff have things they want to do requiring civilians. The MACOMS will have things they want to do requiring civilians, and the MRIS process—which I will describe in more detail later—is the Modernization Resource Information Submission, which is basically the O&S costs associated with modernizing the Army. These demands, along with the Army's equipment program, will all come to the table with more requirements for civilians. What that represents is one big jagged rope that we're trying to get through the eye of the needle called the "ceiling."

How do we do that? We do it through a creative program, invented by MRA&L, with the Commercial Activities program. Recently, Congress put an arrow into that balloon. We still haven't sorted all of that out. There are a lot of negative numbers in our program to account for Commercial Activities, that probably will not come to pass in reality. Now, we dreamed up the efficiency program and said we were in compliance with the PDM, that, in fact, we will be more efficient out there to the tune of 2 1/2 extra percent. With so many civilians taken out of our programs, we are

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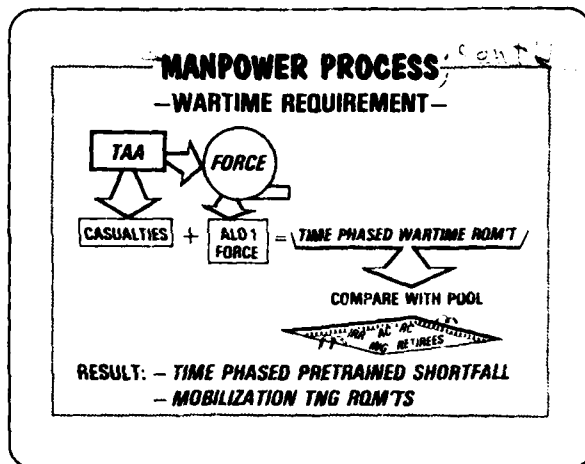
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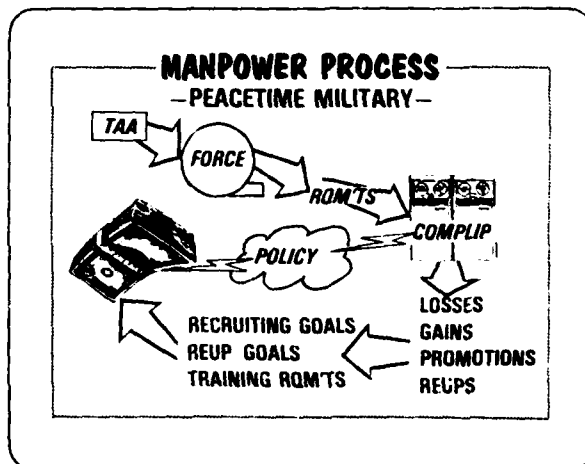
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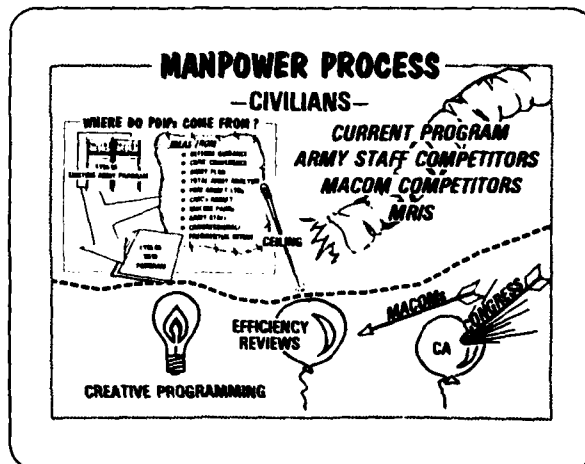
able to pass our program requirement through this needle. But we are really kidding ourselves. There's a BIG arrow called the MACOM about to come in on this one. So, we'll just see how this works out.

[SLIDE 30] Operating Accounts Process. They come from all of these things. All of the new ideas come in from the PARRs, plus the information I told you that the MACOM was going to give us, about what it costs to support the structure changes, plus the modernization support requirements and personnel support. All are going to require operating funds. Now, this slide shows—basically to scale—the way our operating accounts break down.

RPMA is generally a policy decision. We reduce the backlog and maintenance and repair as a start point, and decide at what level. There's a goal in the Army Plan that tells us a direction in which to head, and this is the big chunk in the operating accounts. The base operations of post, camps, and stations will all have some new ideas. The DCSLOG or MACOM PARRs will give us these new ideas. The supply-side requirements are programs 7S and 7M. Generated by the equipment that is in the field now, we're going to have to send repairs to depot maintenance. Those things are being calculated by the DARCOM inputs to us in the form of requirements for depot maintenance support to supply the Army.

An awful lot of supply growth will occur to support the field's new systems. The Army's Health Services Command and certain generals have neat ideas. Others will come in. My favorite example is the chaplain with the enhanced organs. The chaplain had read Mr. Michael's (OSD) paper and decided what we have failed to do is to keep the excessive age of our organs at a level state. So, what he wanted to do was to replace them over time. He didn't fare well in the program building process.

Training and Units Support. I showed you where one of those training requirements came from. That's the requirement that generates new accessions, but you also know that, as people get promoted and as the force structure changes—for Division 86, as an example—you have to send folks back for retraining. All kinds of things input for that conflict model, and so that will be a change. TRADOC will come in and tell us some neat things they want to do in training. The units that are in our basic unit training programs will also have neat ideas.

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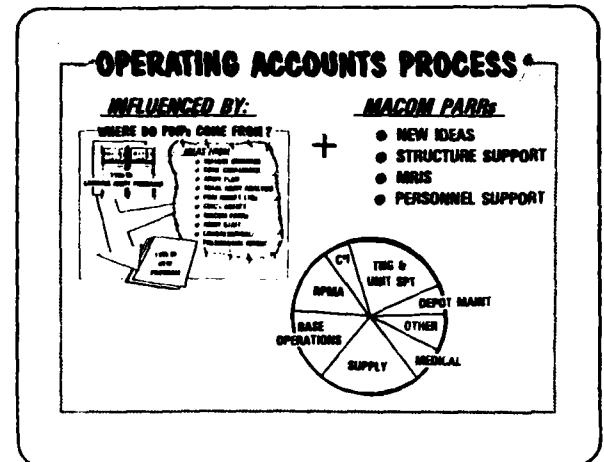
[SLIDE 31] Facilities Process. Given the mission, and the structure, and the equipment, you're going to generate requirements for facilities. We categorize them in these fashions, basically for budget purposes, not necessarily for program purposes. We say that if we make a decision to field MLRS and it requires barracks, then that barracks marches along with MLRS. It doesn't march along in a big bag called "facilities." However, it's going to be satisfied by fixing old facilities or real property maintenance account in OMA or by building new facilities, either family housing or military construction.

And those are the kinds of monies we play with. We don't play much in the program process with NATO infrastructure funds; host nation support is generally considered a given.

Slide 31
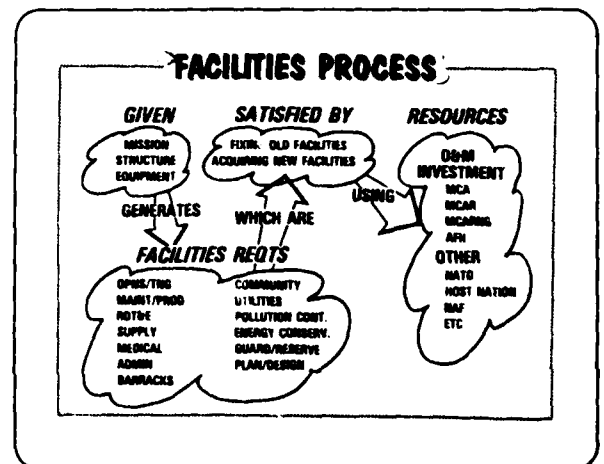
[SLIDE 32] Army Improvements to Facilities Process. That doesn't come to the table too often. We think we have improved the facilities process. We fully support the return of housing to service management. We can integrate the facility process a little better, now that we manage family housing and the Guard, Reserve, and Active components' construction program and real property maintenance. The Army internally is now able to make those trade-offs that we now think are necessary.

A new and exciting development is called FENCES (currently renamed STAIRS--Stable Annual Investment for Renewal of Systems). Yes, it does mean what you think; it stood for Funding Effort Necessary to Correct for Efficiency and Stability. What we are saying to ourselves is, "You know, MCA is always on the margin. Not on the margin is the barracks or support modernization or one thing or another. But, boy, our facilities are really old and imperfect." And so, common business sense, which has been driven in to us by our Under Secretary, Mr. Ambrose, says you have got to reprogram this steady replacement. I think he would probably support the chaplain's organs .or that same reason. But we are now starting on fencing off common business-sense items. I point that out in the construction business, but it's going to be a notion in other areas of the Army program as well.

[SLIDE 33] Force Modernization Support is a subprocess of all of what I've described so far. The Army Modernization Information Memorandum (AMIM), updated twice a year, is telling the world the fielding plan for better than 200 of the Army's modernization systems which are about to be introduced to the '80s and which are already starting to go to the field. This is a very sizable management problem, which we have to make sure is fully accommodated resource-wise in our program. This goes out in tremendous detail about precisely where the stuff is going to go and when it is going to arrive, and the cost factors that the fields are supposed to use to calculate their spare parts and other things. They give that, and then they report back in the January time frame.

The Modernization Resource Information Systems (MRIS) report comes in automated. It updates those fielding costs related to those couple of hundred systems that accommodate the O&S requirements, as well as the construction requirements and other support requirements to field that force. It gets scrubbed extensively by the Army Staff during the January-February timeframe. We call folks in from the field and justify their numbers, and then you'll note that it bypasses prioritization.

It is the cost of doing business. We're not trimming the O&S requirements to field our new systems. It is not part of the prioritization process. It tags along with the system, the cost of "fieldingness." The system itself competes for resources; if it fails, if it dies, the modernization dies with it. It is, in fact, fully accommodated as it walks into the POM.

Slide 32

ARMY IMPROVEMENTS TO THE FACILITIES PROCESS

● RETURN OF HOUSING TO SERVICE MANAGEMENT

● FACILITIES PROGRAMS INTEGRATION

● FENCES
  – PROTECT CAPITAL INVESTMENT. MANAGE SMART.

● FACILITIES SUPPORT TO ALL ARMY FUNCTIONAL AREAS
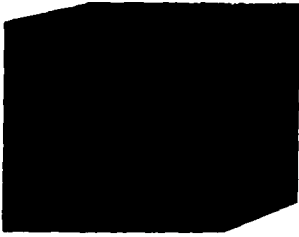
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FORCE MODERNIZATION SUPPORT
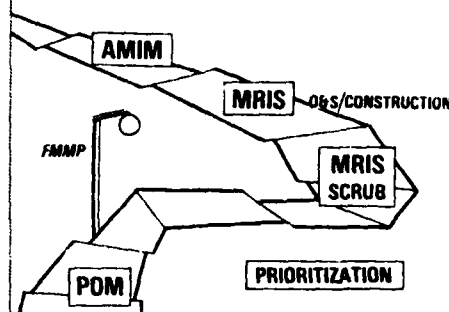
[SLIDE 34] This is the Intelligence process. That's the way I understood it. I've only been there 2-1/2 years; my clearances just came through last week. That's the way I always understood it. Now that I have the proper clearances, it has become a lot clearer to me. Down here is the Director of Central Intelligence, and I still don't know what all of these initials stand for, but everybody plays.

Slide 34

INTELLIGENCE PROCESS

"CLASSIFIED"

[SLIDE 35] Our Intelligence Command, recently inspected by the Inspector General, came back and beat me up for not being able to pull all of this together, because the Intelligence Command in summary sends its reporting process to DA and their reporting scheme over here (pointing toward the center), and the funding is going there, and NSA gets a little piece of it. 1 would just say this is the typical and only view of the intelligence process. If OSD feels that it's under control, we just want you to know that we've got it fenced off, and, if you like, go ahead and do it that way.

Slide 35

INTELLIGENCE PROCESS

[SLIDE 36] Prioritization Process. General Noah mentioned that we used to try mission-area analysis. We have a close-combat panel and a fire-support panel. We have found that MAA is a very useful vehicle; that

fighting structure works very well, when we are thinking of combat development when buying equipment—in particular, when changing our force structure or training policies for close combat. They have performance reviews, hosted or attended by the Vice Chief of Staff. Very often the Fort Knox Armor School will host a post-combat system performance review, and that works very well in there. But, as far as accommodating the information requirements of our managers is concerned, the review did not do very well.

That goes back to the notion of a relevant management construct. The mission-area analysis is not relevant to the Department of the Army. Secretary Marsh never walks in and says, "How are my folks in 818098 doing today?" The Army is a "big blob" in general purpose forces. We can't look at general purpose forces and see anything about ourselves. We went toward close combat first in our program defense, but we're not really organized that way on the Army Staff. We're organized as an Army Staff. We recognize that the Army's mission is to support the fielding of forces that will be fought by divisions; that is not to say that doctrine development or equipment requirements are considered by the Staff.

The Secretary asks us when we bring our multiples to him, "What have you done to these things? What have you done to the structure, the manning plan of structure, the equipping, the training, the facilities, the mobilization capabilities, or the deploying posture in our sustaining posture?"

Those are the terms they have been talking in for several years. That is the way we have structured our POM Volume 1 to report out to you. Is it a relevant management construct for OSD? We think so. You always hit the right summer issues that we're asking you to hit. You also throw in a few extra ones. We wish you hadn't, but we seem to be able to tell our story fairly well to you. You recognize the complexities of this, the massive thing called an Army. That's not as easily understood as a carrier and air wings and other things.

So, at this point in time, the proponents of manning, equipping, training, etc. have become our relevant management construct. And they prioritize in those eight functional components (as shown on the slide), very much in the way the Air Force talked about their panels. The guy in the Training panel will be worried about the procurement of simulators, for example. The Equipping guy will not have that management responsibility for simulators; somebody else will.

PRIORITIZATION PROCESS

8 FUNCTIONAL PROPONENTS
- STRUCTURE (DCSOPS)
- MANNING (DCSPER)
- EQUIPPING (DCSLOG/RDA)
- TRAINING (DCSOPS)
- FACILITIZING (ACE)
- MOBILIZING (DCSOPS)
- DEPLOYING (DCSOPS)
- SUSTAINING (DCSLOG)

UNRESOURCED

FISCAL GUIDANCE

TARGET TOA (PB)

RISK

PROGRAM YEARS →

FUNCTIONAL REVIEW

PAE DAB

PBC

- WHAT (PURPOSE):
  - *INITIAL VIEW OF PROPOSED PROGRAM*
  - *SOLVE DISCONNECTS - BALANCE PROGRAM*
  - *IDENTIFY DOES/DOES NOTS (ISSUES/RISKS/TRADE OFFS)*
  - *PRIORITIZATION REVIEW*
- WHEN: *MID MARCH (TWO WEEK PROCESS)*
- WHO: *FUNCTIONAL AREA PROPONENTS PRESENT*
  - *PBC AND GOAL TENDERS CRITICIZE*
- HOW: *PRESENTED IN POM FORMAT ___ 8 FUNCTIONAL AREAS AND SPECIAL SUBJECTS. BUILDS FROM*
  - *BUDGET YEAR TO 89*
  - *JANUARY FYDP TO DRAFT PROGRAM*
- SELCOM CONTINUES DEBATE

What we have, then, is that each of these panels has stacks of initiatives, and all of these new ideas are coming in PDIP form. Each panel has got to come to grips with its notions of relative priority. They start out with the President's Budget January, TOA target, and we give them a risk. We tell each one of these guys, "We'll have to display a different-sized risk band."

The Army planners will establish that if they think, in the long-range scheme of things, that one of these functions is more important than another. The size of this band risk may differ a little between one panel and another. There will also be these initially unresourced new ideas coming in. They'll redo all that, and when Fiscal Guidance finally gets settled, the prioritizer of the Army, DCSOPS, will draw Fiscal Guidance across with the important financial considerations of the PA&E, and that becomes—sort of—the POM's start point program. That's what the generals plan individually with these panels. I noted the Air Force has colonels chairing them. Frankly, colonels do most of this work, but their generals are very interested. General Thurman, for example, is very interested in the development of his manning program. But it's not all pulled together as a balanced Army program at this point in time, once that first Fiscal Guidance gets drawn across it.

To pull it all together, we go through a functional review, basically, the Program and Budget Committee; the PA&E and the DAB co-chair this one. [SLIDE 37] It's the initial view of the proposed program with the panel's views and their mission is to deal with the disconnects and get this program in balance.
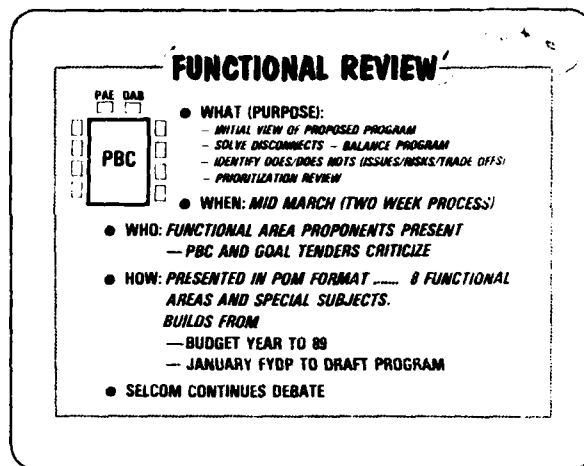
We do it in a sort of does/does-not format. The functional components come to the table and say, "O.K., given that particular Fiscal Guidance, this is what I can do, and this is what I cannot do."

It also serves as a review of the prioritization process. We do that in mid-March. It takes a couple of weeks, just at the two-star level at the PBC. The eight functional area components are the guys who make the presentation. The folks who will criticize them will be folks who deal in appropriations, who will be able to give you the insight that says you can't do that.

How do we do that? We present it in that POM format I described, in the eight functional areas. In special subjects that are of high interest, like chemical warfare or RDF, they get special displays and other things. We ask the panels to build it from two bases. Build it from the budget year up to '89, to show us what's happening over time. But, then, also build it from the last January FYDP, so that you can see and get a feel for an approval of changes to that base program. Recognizing that one of our major goals is stability, we have really got to justify to ourselves that change ought to take place. Then we go and solve as many of those things we can at the two-star level and take our proposals to the SELCOM. They debate that once or twice or three times and go to the Chief of Staff and the Secretary for approval.

Now, that management concept. [SLIDE 38] Is it mission budgeting, as Wayne Allen calls it? Is it mission-area analysis? What is it? You know it's very difficult to figure out.

THE MANAGEMENT CONCEPT

INTERSERVICE PROGRAM COORDINATION
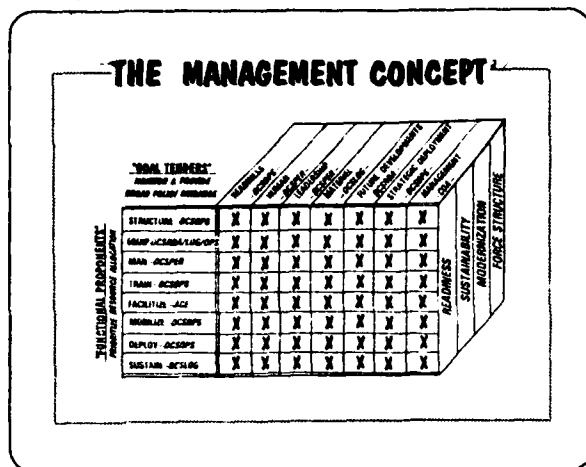
Those functional proponents, these prioritizers, and these eight functions are all going to get beat up by another guy wearing a different hat, the goal tender. An example: the DCSOPS readiness goals. He's interested in readiness all across those things. The leadership guys say you've got to worry about leadership all across those things.

And then we have to think in your terms, in OSD's terms, of the four pillars: readiness, sustainability, modernization, and force structure. In our view, that is not so relevant a construct. Why? Because there are Xs in all those boxes, and when you go into depth, there are Xs all across those four pillars. In our view, to modernize our force structure is to make it more ready. You can't just categorize it as modernization. To give a man a new antitank weapon he can carry on his shoulder is modernization in one sense, but if the old one can't knock the tank out, it's also readiness. So, we haven't found this construct very useful and often argue against it.

This management concept is complicated—no question about it—but it seems to be internal to the Army and most relevant at the time. Why have we changed over time? Because the way we view ourselves changes over time. When managers change, they have new information requirements. So, you might also ask yourself, "Why has the management system survived these 20 years?" Because it's so darned hard to change every time managers want to look at it in a different way.

[SLIDE 39] Interservice Program Coordination. Mr. Carlucci told us on March 31, "You will coordinate your programs." For POM
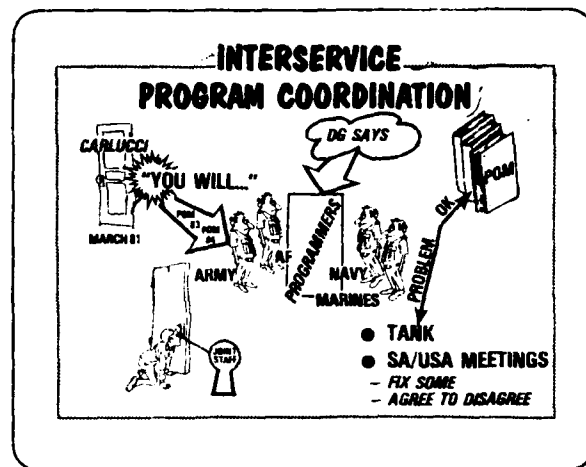
83 and 84, we did. We had a meeting; all attended. We had that meeting, and where it was opportune for us to beat up the Navy about sealift support, we would cite the DG. Where it was not opportune, we wouldn't cite it. But we did have this meeting—actually, a series of meetings—which said, "O.K. In all of these sorts of cross-service programs, these things are O.K., and everybody put them into his POM, but we can't agree at this level." So, some of them went to the tank, and some of them went to the Secretary. Or the Under Secretaries had meetings, and they agreed to fix some of them, and they also agreed to disagree; for instance, they take things like strategic mobility to the DRB.

Has the system worked well? It has solved a lot of disconnects; it really has. It has a couple of problems. One is this outsider (the Joint Staff). We're not sure where it's supposed to be. Another problem is that it comes in rather late in the cycle. We've been through our functional review already, and so nobody wants to disrupt it with a big bill. We'd have to start all over again; so, that tends to try to make the problem go away. But, basically, I was present when this did not happen. In my view, interservice coordination has improved and serves to better the process.

[SLIDE 40] Data Management Budget Continuity. (There'll be a pop quiz on all these acronyms.) Basically what that says is that there is one data base in the Army—only one official data base, the Program and Budget Data Base. It can accommodate the programmer in PDIP terms, and then it translates itself into budget terms at a program-element level of detail. That insures budget continuity, in our view. Conscientious decisions have to be

made to have the budget out of sync with the program. A lot of data bases in sub-appropriations feed this data base, but it is one central data base.

Slide 40

DATA MANAGEMENT & BUDGET CONTINUITY
- A SINGLE DATA BASE
- ALLOWS PREPARATION OF THE BUDGET FROM PROGRAM DATA
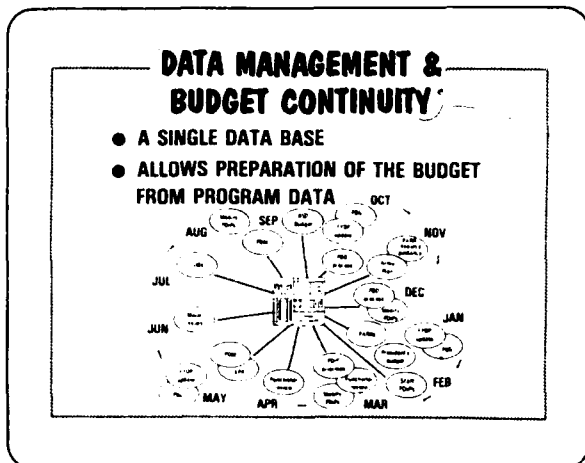
[SLIDE 41] This big "E" is in the PPBS system for the Army. We advertised it that way and call it Execution. If Mr. Carlucci wants us to be responsible for execution, we're going to have to start paying more attention to it. Our Comptroller took the lead and developed the Program Performance Budget Execution Review Systems (PPBERS), macro-level, not all the nitty-gritty stuff, just the stuff that ought to be of importance to the Department of the Army Staff. SELCOMs meet about all that.

Resource Management Review (RMR). Generally, we're not talking about the review at this level of the procurement program; it gets more reviews than you can imagine, but it does play a role. It feeds back problem areas that have to be solved immediately. It also feeds back systemic problems: a disconnect between the purchase of aircraft in one year and the operating account requirements two years hence--sort of the cross-staffing that sometimes falls through the crack. And so, General Noah shares a proces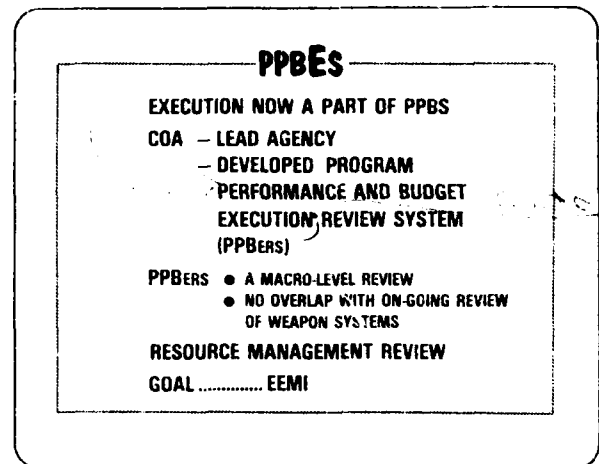s called RMR SELCOM, which will take those sticky wickets and really delve into them, really study them in order to improve on our process overall.

What's the goal of all that? Clearly the goal is Economy Efficiencies and Management Improvements (EEMI). We think we have a fairly workable system, and we're moving in positive directions. I would throw out only one caution: We've got to be very cautious that EEMI doesn't just get to be such a data management

burden that we forget what it's there for--the definitions of cost avoidances. When you kill a system that you really want, you can only kill it because of fiscal availability. Do you claim it as a savings? Hard arguments about all of that. What does it result in? Well, you know, it's about that thick right now; and I just throw out the caution that if you really want to get down into finding the economy's efficiencies and management improvements, you've got to go a lot deeper than just reports.

Slide 41

PPBEs
- EXECUTION NOW A PART OF PPBS
- COA – LEAD AGENCY
  – DEVELOPED PROGRAM PERFORMANCE AND BUDGET EXECUTION REVIEW SYSTEM (PPBERs)
- PPBERs
  - A MACRO-LEVEL REVIEW
  - NO OVERLAP WITH ON-GOING REVIEW OF WEAPON SYSTEMS
- RESOURCE MANAGEMENT REVIEW
- GOAL .... EEMI

[SLIDE 42] These are a couple of views from one Army programmer on recent changes. We really like the participative management. [SLIDE 43] It has occurred since the last PPBS review. We like very much to have the Chiefs and the Secretaries present in the DRBs. We think that's really raised their interest level in it all, as well as enabling us to have eye-level instant feedback, rather than to have it as it used to be, with the service programmers sitting along the wall, not allowed to open their mouths unless spoken to.

Cross-Service Program Coordination. Earlier, I said that we think that was a step in the right direction; we still need to move out on improving it. Emphasis on planning, maintaining our azimuth, and no longer a silent "P." We're really patting ourselves on the back as well as OSD. We enjoy--that's the wrong word, we appreciate--the opportunity to play actively in the building of the Defense Guidance. We sometimes wonder about the significance of those meetings when we're arguing about whether the word should be "key" or "critical," but at least the process is participative.

AN ARMY PROGRAMMER'S VIEW OF RECENT CHANGES

IMPROVEMENTS IN PPBS

- ● PARTICIPATIVE MANAGEMENT —
  SERVICES & CINCs
- ● CROSS SERVICE PROGRAM COORDINATION
- ● "PLANNING" EMPHASIS — MAINTAIN
  AZIMUTH
  - *NO LONGER SILENT "P"*
- ● IMPROVED PROGRAMMING
  - *FOCUS ON PLANNING & POLICY ISSUES*
  - *CUT IN POM DOCUMENTATION REQUIREMENTS*
- ● RESPONSIVENESS TO ADJUSTMENTS
  - *+188 DRILL DESPITE DEMISE OF ZBB BANDS*
- ● POM BALANCING METHOD

We think that programming has improved. We focus sharply on planning and programming. The DRB summer program reviews focus sharply on planning and policy issues. The program review group scrubs and throws out the nickel-and-dime stuff; this has helped them focus on bigger issues. We are very pleased with the fact that the '82-'86 POM was that very thick and that our current POM is that thick. We encourage that. Continue in that direction. We think that, even though we no longer send you laundry lists of prioritized packages. In fact, we have still been responsive, though not necessarily in smart fashion, because the less time you have to do it, as General Cunningham said yesterday, the worse it gets. But we have been able to be responsive with the systems we have in being.

We also like the last DRB balancing method, that is, when the DRB has said, "Yes, we think you need to do all these billion-and-a-half dollars' worth of things." We like very much the services' opportunity to come back and say, "O.K., but here's our view about all of that."

Some things, we think, still need to go. [SLIDE 44] Basically, as General Pat Roddy said in a memo about a year ago, time is really the problem, time to do it right the first time. Anything we can do to be ruthless, to get rid of less effective pieces of this PPBS has got to be in the right direction. I've talked to you about several of the problems discussed before, and you know the disconnects between DG scenarios, and the use of old procurement plans, and the DAMPL can't always be right--nobody is going to argue with me there. We would certainly like to have more time.

The Army has, for some time, talked about biennial programming and budgeting. Budgeting, of course, is driven by the Congress. The ultimate fix would be to get the Congress to agree that we can send the budget over only once every other year. That is highly unlikely; so, an alternative would be a biennial program. Do you really want us to submit all of the information in the same format every year? We've been fairly successful in the past. Here's your laundry list of changes, like the PCD, the Program Change Decision. Maybe we could do that once every other year. But those are proposals we've made before.

This extensive planning process requires an exorbitant amount of time and effort arguing about the word "key" or "critical." Have we not set the course already? Do we not know generally where the department is headed?

MORE IMPROVEMENTS NEEDED

- ● DO IT RIGHT THE FIRST TIME
  - ●● BIENNIAL PROGRAMMING/BUDGETING
  - ●● PLANNING _____ YEARS 1 AND 4
    - *SET AZIMUTH*
    - *NON REPETITIVE*
    - *SUPPLEMENT WITH SIGNIFICANT CHANGES/DECISIONS*
  - ●● STABLE FISCAL & MANPOWER GUIDANCE
- ● INTELLIGENCE PROCESS
- ● FURTHER DATA REDUCTIONS
- ● ROLE OF THE JOINT STAFF
- ● ROLE OF OSD

Maybe we just need to do that in the first year and fourth year of an administration. The first year means, "This is where I want to take this department." The fourth year means that, "In case I'm not here next year, this is where I want to leave my successor, with the notion of where I wanted to take the department."

Stable Fiscal and Manpower Guidance. I think General Cunningham has talked about that at length. We recognize there aren't a whole lot of things that can be done within the department driven much by outside; nonetheless, massive gyrations have to occur and massive workloads which takes time away from all those other neat things I was talking about to accommodate the essentially nine POMs that we submitted last year. And manpower guidance. Don't forget the word "manpower."

We just think that something has to be done with this notion of creative programming. Either we have to go back and argue that there is a relationship between our critical resources, civilians, dollars, and military, new initiatives, and defense improvements, or just find better ways to come to grips with the inability to raise civilian endstrength. The intelligence process—I leave that open for discussion. It is a very complicated system.

Further data reductions: Anything you can do to reduce our workload of passing numbers back and forth is great.

Role of OSD and JCS. I'd like to cover these two points together. We know there is an ongoing review of the role of the JCS. A subset of that is the role of the JCS in the defense guidance business and in the resource allocation business. We probably think that, maybe, they're out to beat such a review off the OSD staff's role. I'm not being facetious when I say that I was probably naive in expecting a reduction in the size of the OSD staff because of the new and exciting decentralized management philosophy. I haven't seen that occur yet. There are plenty of folks who are still looking for things that are below that relevant management construct level of OSD, in my view. But, anyway, there's a whole big bag right in those two offices, right there.

That is a look from one service programmer's perspective. I'd have to have another look. We say, "Don't be specific in the Defense Guidance for service-unique requirements; do it for cross-service requirements only." But why isn't the JCS the one to tell us to get that act together? Enough said! That concludes the pitch on the Army program

system and just a glimpse at what we think could be improvements.

DISCUSSION

Colonel Donahoe: Going back to where you had the functional areas, one of the problems we're trying to solve is: How do you tie all that together? You had the functional proponents in there, as well as structure, manning, and equipment. I guess the point that I'm driving at is we may do very well over here— let's say, in mobilizing facilities—but how do you know if the training base will support all the rest of that?

Colonel Carney: What is done is that the panel will be given this series of PDIPs. If PDIPs are constructed right, there will be a "piece of training" in that particular initiative. If it's a mobilization initiative, for example, it will undoubtedly have a mobilization training base piece of it. So, the building block is where we think we need to integrate it. That is not to say, however, that these panels aren't talking back and forth all the time. And it is not to say that the functional review doesn't find several disconnects.

Question: I guess I'm talking about a more macro basis than just the PDIP. Does the organization over at Bethesda look at that whole thing, all the way back to training, to ask, "Is the training base big enough to support everything that I have to do?"

Colonel Carney: You will not find on the Army's staff an office that is trying to do cost-benefit analyses of these various functions. But, organizationally, you will find a staff organization, like DCSPER, that is always very worried about the manning posture of the Army. Putting that together in optimum fashion is too tough for the colonels of the Army. We've got to pass that one on to the generals and participate with them.

Question: I'd like you to comment on your planning and programming philosophy. It seems from your presentation that you place a great deal of stock in the simulation results of a specific scenario, and you implied in fact that, if the scenario were changed a bit, the results could be very different and certainly would be traumatic to the staff. There's another school of thought which is very concerned about trying to plan with specific scenarios. Is that of concern to the Army, and can you do anything to overcome that, to provide results that might be a bit more scenario-independent (if that's possible)?

Colonel Carney: There are diversions of the warfighting analysis that are going on in the Concepts Analysis Agency all the time. It is sensitivity analysis, if you will. You don't run the whole model. That would take 6 months, and that's a lot of computer time. But we can run diversions.

Question: What is the difference between the plan and the POM?

Colonel Carney: You will find very few numbers in the Army Plan. It will look more like POM volume 1, which is a narrative description of the Army's POM as opposed to all of its resource statements. It will, in fact, establish that direction we're heading in these eight functions and goals. It will be our objective, if you will. Now, when you see the POM in May, as opposed to the Plan now, you will find as it is now going on with Defense Guidance, that a lot of the goals and objectives were not affordable. So, the words will not be the same. That's the difference.

Question: You spoke eloquently about prioritization. One of the things critics might say about this process is that, although you set priorities, you rarely kill any major functions or major systems. Instead, you change the rate of acquisition. First, do you think that is a problem, and, second, to the extent that you think that is an issue, how would you go about changing the Army programming system?

Colonel Carney: The Army's argument against providing OSD a priority list has been that it's not really a priority list until you know what that dollar value cut is going to be. Because, even if you incrementalize the program development packages, it doesn't really reflect the top leadership's view of priorities. PDIPS are not a relevant management construct. We don't lay a PDIP display on our leadership. And so, until you know the size of the bogey, you don't really know what your priority is. And so, these panels, if you will, are going through this development process to try, in fact, to prioritize within these eight functions. But it really doesn't get serious until the Fiscal Guidance comes down.

General Noah: I'll take that one, Tom. Let's take the Navy, for example. Would you like to kill off submarines or aircraft carriers? Which one? Take your choice. The Army, as I said earlier, is made up of a lot of incremental packages, and the way most of those systems appeared was through a thing called the POM field development plan. They go through that, and then they come up with all

the areas in which things are needed, like the DIVAD gun. That raises the question: Is there a need for a gun versus a missile? I don't think that much will be killed off in the prioritization process that will occur this winter. But, off-line, within the equipping process, we'll have to see how much gets killed off. But there are off-line methods to do that, and it has to be looked at by the top level.

I think it's getting apparent to the Army that it can't buy everything. But when you kill one of those things off, you leave a valley of risks in a hump of a battlefield. How much of that valley of risk you can afford is a continuing argument. We're just going to take some of those valleys of risks. If something comes out of the end of a barrel, it tends to be of higher priority, it seems. There are some systems—and I won't get into the substance here—that I have my doubts about, as far as the priority and risks are concerned. The particulars from the programs have to jump up and hit the decision maker in the face. Until you know those particulars, the priority is just a notion.

Question: I take it that your view is that it is not something that can be done very well within the formal programming process, but should be done off-line.

General Noah: The way we work, the programmer is not the one on the Army staff that should do that. The people who worry about that are going to be General Jim Merryman, DCSRDA, because he's got the contracts, and General Bill Richardson, DCSOPS, who is the prioritizer and who's got to put it all together and worry about it. It's primarily those two, centered about a guy in our staff called the Director of Requirements, who worry about prioritization. And these staff elements work in conjunction with the two primary Major Commands, TRADOC and DARCOM. That's why I can't direct that one way or another. But we certainly push that around. The Under Secretary, Jim Ambrose, is bringing our cost discipline really into view. He's not going to let us loose on that. I hope you'll see some changes this year. I can't guarantee it.

Colonel Carney: There will be proposals presented as a result of the prioritization process and the draft POM that goes to the functional review. It will have a proposal of several systems for termination.

General Noah: It is amazing how hard it is to terminate a system. Amazing! They keep coming up.

A MISSION-AREA PLANNING COST SYSTEM*

by

Dr. Robert M. Berg and Dr. Stanley F. Smith
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The work reported here was undertaken in 1981 for USDRE and OSD (Comptroller). It is a direct result of the DepSecDef program for improving the DoD Planning, Programming, and Budgeting System in general and long-range planning in particular. The thrust of the work has been to assess the feasibility of a common, mission-area-oriented program structure and an associated planning cost system that would allow affordability assessments of the OSD and service plans in the FYDP out years and over the Extended Planning Annex (EPA) years.

[SLIDE 1] The presentation will be given in two parts. The first part of the presentation will address the first two points: an overview of the mission-area planning cost system and an explanation of the proposed mission-area structure that is a candidate proposed for the underlying structure.

The second part of the presentation will address the planning cost system, using the conceptual USAF planning cost system as an example and will then present summary remarks.

A MISSION-AREA PLANNING COST SYSTEM OVERVIEW

[SLIDE 2] The mission-area planning cost system is a tool for use in the planning part of PPBS.

The main objective of a mission-area planning cost system is to be able to assess the affordability in the out years of the programs formulated in response to the objectives of the Defense Guidance. The mission-area planning cost system would aid OSD and the services in examining the cost implications of the planning strategies, assessing their overall affordability, and assessing comparative costs among Defense programs within a mission-area framework.

Several concepts and features have served as criteria and, indeed, constraints on the process for assessing the feasibility of a mission-area planning cost system from the outset of the feasibility study.

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* This paper is an expression of the view of the authors and not necessarily those of any Department of Defense agency or the Betac Corporation.

Slide 1

- THE MISSION-AREA PLANNING COST SYSTEM – OVERVIEW
- THE MISSION-AREA STRUCTURE
- THE PLANNING COST SYSTEM
- SUMMARY

Slide 2

A MISSION-AREA PLANNING COST SYSTEM OVERVIEW

OBJECTIVES
- ASSESS AFFORDABILITY OF OBJECTIVES OF DEFENSE GUIDANCE
- EXAMINE COST IMPLICATIONS OF PLANNING STRATEGIES

CONCEPTS AND FEATURES
- FYDP OUT YEARS AND EPA YEARS: TIME HORIZON
- ASSOCIATION OF OWNERSHIP AND OPERATING COSTS WITH MAJOR FORCES
- AGGREGATION BY MISSION STRUCTURE, SERVICE, AND APPROPRIATION
- CONSISTENCY WITH SERVICES' PLANNING SYSTEMS AND PLANNING FACTORS
- DEPENDENT ON EXISTING DATA SOURCES
- CONSTANT DOLLAR PROJECTIONS WITH INFLATION FACTORING BY APPROPRIATION
- SIMPLE, FLEXIBLE, AND "ROUGHLY RIGHT"

- The time horizon is focused on the out years of the five-year program and extends across the 10 years of the Extended Planning Annex (EPA). The intent of the mission-area planning cost system is to integrate or knit together the plans from the FYDP out years with the plans of the EPA years for an integrated assessment of plans from a mission-area viewpoint across services and over the long-term horizon.

- A primary concept of the planning cost system is to be able to associate ownership and operating costs with major forces they support, in order to assess the full costs of those forces and trade-offs in mission-area strategies or objectives that involve those

forces. Implicit in the concept is the necessity of being able to estimate and associate reasonably representative ownership and support costs so that Total Obligational Authority (TOA) may be estimated for the combined service plans in the out years of the EPA horizon.

● The mission-area structure is critical to the system, in that it allows allocation of service program costs into categories in which the input resources are associated in common, mission-area like functions. The mission-area structure has been developed at the program element (PE) level by grouping PEs with common functions into clusters. Those clusters can be further grouped into mission areas. The mission areas can be further grouped into 1 of 13 mission categories. Thus, by this nested aggregation or grouping process, the costs of the resources at the PE level can be aggregated at three levels above the PE level within the mission-area structure.

● A major constraint on the mission-area planning cost system is that it be consistent with the services' planning systems and processes in order to maintain commonality and to minimize any added burden in formulating inputs to the system.

● Another major constraint is that the system be dependent only on existing data sources, again in order to minimize the added burden and promote commonality of input data with other aspects of OSD planning systems, as well as eliminate data input differences as a systematic source of differences in results.

● The cost projections of the mission-area planning cost system should be in constant dollars with the capability for relative pricing or inflation factoring by appropriation category.

o Because the mission-area planning cost system focuses on the long-range horizon and at a macro planning level, it should be kept as simple and as flexible as possible with "roughly right" results being sufficient for the assessments desired.

[SLIDE 3] The primary, key element of the mission-area planning cost system is the proposed common information structure, the mission-area structure. It offers an aggregation of PEs by function into 342 clusters, an aggregation of function or cluster groups into 107 mission areas, and, finally, an aggregation of mission areas in 13 mission categories. This mapping of PEs into mission-area structure is available as one candidate common information structure. The objectives to be served by any common, mission-area-oriented structure are shown on [SLIDE 4].

STRUCTURE OBJECTIVES

The objective of the mission-area structure is to provide a common information structure that will give visibility to issues that span all the services in scope. From a planning issues viewpont, for example, it may give visibility to planning strategies in a set of mission areas or force mixes that support a mission category, such as strategic warfare. It certainly should give visibility to topical issues, such as manpower or logistics, and offers the opportunity for consistency of information structure over time, particularly for planning views from the out years of the FYDP and over the EPA years.

A further objective has been to find or create an information structure that would be acceptable to all the focused interest groups in the Department of Defense that span R&D, systems acquisition, force structure, and manpower, for the purpose of examining affordability issues across services in the planning part of PPBS. A primary focus is that of being able to associate ownership and operating costs with major systems and force structure.

[SLIDE 5] These three criteria were imposed at the outset of the development of the mission-area structure. The missions should take as its points of departure those that were used by OSD in 1981. (A comparison of the proposed missions with the 1981 OSD missions is shown on the next slide.) The mission-areas list should take as its points of departure the list developed by USDRE and, finally, each PE should have a unique assignment in the mission-area structure.

There were obvious conflicts in implementing a mission-area structure that would meet those critera. The approach used to resolve those conflicts was to create specific mission areas for multipurpose combat units and, within mission areas, to group functionally similar PEs into clusters.

TOTAL NUMBER OF PEs

    ACTIVE 2,490

    HISTORICAL 750

                                 3,240

TOTAL NUMBER OF CLUSTERS 342

TOTAL NUMBER OF MISSION AREAS 107

TOTAL NUMBER OF MISSIONS 13

STRUCTURE OBJECTIVES

• VISIBILITY FOR PLANNING ISSUES –
  PLANNING STRATEGIES, MISSIONS

• VISIBILITY FOR TOPICAL ISSUES –
  MANPOWER, LOGISTICS, CHEMICAL WARFARE, THEATER NUCLEAR
  WARFARE, AS WELL AS SYSTEMS ACQUISITIONS ISSUES.

• TIME-FRAME CONSISTENCY –
  PAST, PRESENT, PROGRAMMED, AND PLANNING PROJECTION
  BEYOND THE FYDP, ALL IN ONE FORMAT

• UNIVERSALLY ACCEPTABLE –
  R&D PLANNING PERSPECTIVE, ACQUISITION PLANNING PERSPECTIVE,
  FORCE STRUCTURE PERSPECTIVE, AND OWNERSHIP AND OPERATING
  COST ASSOCIATIONS

CRITERIA

  MISSIONS .... THOSE USED BY OSD IN '81
  MISSION AREAS .... THOSE DEVELOPED BY USDRE
  PEs .... EACH A UNIQUE ASSIGNMENT

CONFLICTS
  F-4s
  CARRIERS
  SUBS
  DIVISIONS

APPROACH
  • CREATE SPECIFIC MISSION AREAS FOR MULTIPURPOSE
    COMBAT UNITS
  • WITHIN MISSION AREAS, GROUP FUNCTIONALLY SIMILAR
    PEs INTO CLUSTERS
  • REDEFINE PE STRUCTURE TO ACHIEVE GREATER UNIT
    HOMOGENEITY

MISSIONS

PROPOSED	'81 POM
• STRATEGIC WARFARE	• STRATEGIC W/F & C³I
• THEATER NUCLEAR W/F	• THEATER NUCLEAR W/F & C³I
• AIR WARFARE (AF)	
• LAND WARFARE (ARMY)	• LAND AIR WARFARE & C³I
• AIR WARFARE (USMC)	
• LAND WARFARE (USMC)	
• NAVAL WARFARE	• NAVAL WARFARE & C³I
• MOBILITY	• MOBILITY C³I
• CHEMICAL W/F	• CHEMICAL W/F
• DEF-WIDE INTELLIGENCE	• INTELLIGENCE
• DEF-WIDE COMMUNICATIONS	• DEF-WIDE C³
• SCIENCE & TECHNOLOGY	• SCIENCE & TECHNOLOGY
	• GEO-PHYSICAL & SPACE
	• TEST AND EVALUATION
• DEF-WIDE SUPPORT	• INTERNATIONAL COOPERATION
	• MANAGEMENT AND SUPPORT

The F-4s and aircraft carriers clearly are examples of multi-purpose combat units. A special mission area, multi-purpose battle groups/air wings, was created within the naval warfare mission category to give each of those program elements a single, unique assignment within the mission area structure.

The submarine forces and associated PEs were allocated between Strategic Warfare (sea-based strike) and Naval Warfare (submarines).

The Army's major forces program elements, such as PE 22311A, Division (Europe), tend to be large aggregations of many diverse types of combat units. Assignment of those PEs as whole entities within the mission-area structure would require compromises. One approach used to resolve the conflict was the redefinition of the PE structure in order to achieve greater force-unit homogeneity below the PE level.

MISSIONS

[SLIDE 6] A comparison of the proposed mission-area structure, in the left column, and the initial OSD mission structure, shown in the right column, reveals the major differences. The land, air warfare & command, control, communications, and intelligence aggregate category on the right was broken into component missions as shown. The command, control, communications, and intelligence categories that would be specifically associated with the warfare missions were assigned to them. The remaining command, control, communications and intelligence activities that supported more than one warfare mission were grouped into Defense-wide communications or Defense-wide intelligence. The four support

mission categories shown on the right were aggregated into a Defense-wide support category.

[SLIDE 7] Here, for the Strategic Warfare mission, the mission area of airborne strike is taken as the departure point mission area for disaggregation. It has four component clusters, as shown. Taking the strike aircraft cluster for further decomposition, all the component PEs are listed. Those PEs that are historical PEs are designated with an (H) following the title.

A mission-area structure, as shown in this example, offers a unique and consistent means of associating PEs of similar function across all the five-year defense program categories and of aggregating them at three alternative levels. Such a mission-area structure is desirable for common use in examining cross-service program issues. It offers a common reference framework upon which resource allocation alternatives may be assessed.
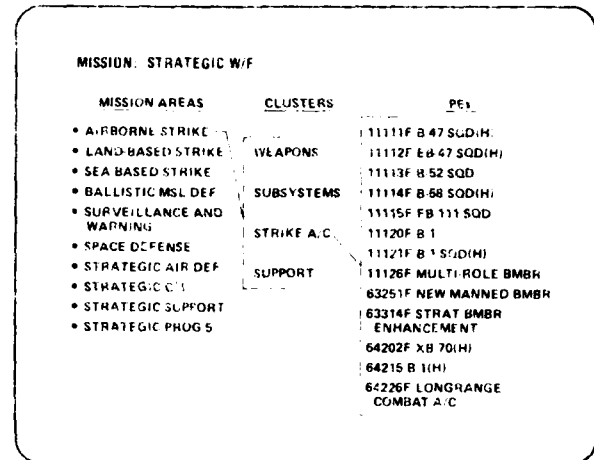
[SLIDE 8] On this slide, for the mission of Naval Warfare, the mission area of Naval Warfare Program 8 is taken as the point of departure for further disaggregation. It has five component clusters, as shown. Taking the clusters' training activity--system oriented for further disaggregation--yields the PE list as shown.

Another feature of the mission-area structure is shown here. Note, for example, the mission area titled Naval Warfare Program 5/2. That denotes the mission area in Naval Warfare Program 5, the Reserves, that contains the reserve activities that are similar to those performed by the active duty forces in Naval Warfare Program 2.
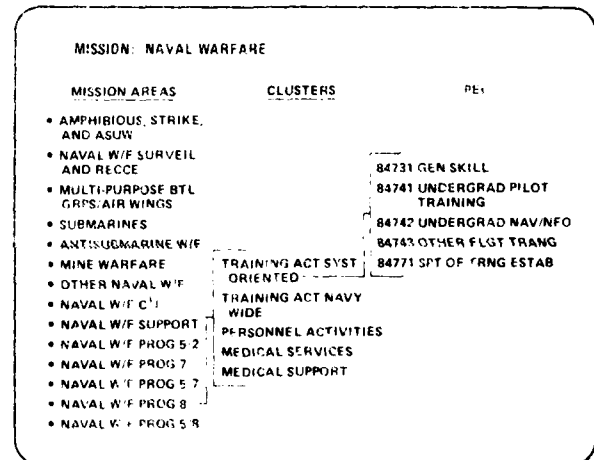
[SLIDE 9] The programs in the upper left portion of the figure are the areas in the total Defense program that will vary most, depending on planned force structure variations, operating tempo, and such other planning issues as readiness and sustainability levels. They include such programs as the air-, ground-, and sea-launched cruise missiles, ships, and aircraft, with their associated weapons and supporting subsystems, the fighting forces.

The items in the lower left portion will tend to be the residual or non-variale portions of the programs above the line; that is, they are portions of the program, that over a relatively wide range of activity level in the Defense program, are less directly tied to and sensitive to change in activity level or are deferrable in time. They include fixed costs of such programs as Base Operations, Real Property Maintenance, and Headquarters units.

Slide 7

MISSION: STRATEGIC W/F

MISSION AREAS	CLUSTERS	PEs
• AIRBORNE STRIKE	WEAPONS	11111F B 47 SQD(H)
• LAND-BASED STRIKE		11112F E B 47 SQD(H)
• SEA BASED STRIKE		11113F B 52 SQD
• BALLISTIC MSL DEF	SUBSYSTEMS	11114F B 58 SQD(H)
• SURVEILLANCE AND WARNING		11115F FB 111 SQD
• SPACE DEFENSE	STRIKE A/C	11120F B 1
• STRATEGIC AIR DEF		11121F B 1 SQD(H)
• STRATEGIC C³	SUPPORT	11126F MULTI-ROLE BMBR
• STRATEGIC SUPPORT		63251F NEW MANNED BMBR
• STRATEGIC PROG 5		63314F STRAT BMBR ENHANCEMENT
		64202F XB 70(H)
		64215 B 1(H)
		64226F LONGRANGE COMBAT A/C

Slide 8

MISSION: NAVAL WARFARE

MISSION AREAS	CLUSTERS	PEs
• AMPHIBIOUS, STRIKE, AND ASUW		
• NAVAL W/F SURVEIL AND RECCE		84731 GEN SKILL
• MULTI-PURPOSE BTL GRPS/AIR WINGS		84741 UNDERGRAD PILOT TRAINING
• SUBMARINES		84742 UNDERGRAD NAV/NFO
• ANTISUBMARINE W/F		84743 OTHER FLGT TRANG
• MINE WARFARE	TRAINING ACT SYST ORIENTED	84771 SPT OF TRNG ESTAB
• OTHER NAVAL W/F	TRAINING ACT NAVY WIDE	
• NAVAL W/F C³	PERSONNEL ACTIVITIES	
• NAVAL W/F SUPPORT	MEDICAL SERVICES	
• NAVAL W/F PROG 5/2	MEDICAL SUPPORT	
• NAVAL W/F PROG 7		
• NAVAL W/F PROG 5/7		
• NAVAL W/F PROG 8		
• NAVAL W/F PROG 5/8		

Slide 9

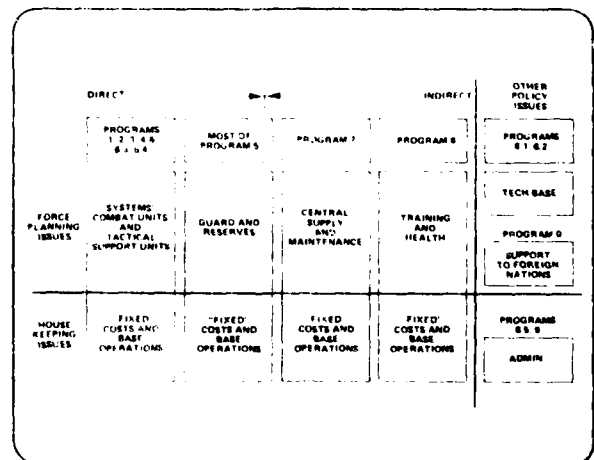|	DIRECT		INDIRECT	OTHER POLICY ISSUES
	PROGRAMS 1 2 3 4 6 & 4	MOST OF PROGRAM 5	PROGRAM 7	PROGRAM 8	PROGRAMS 8 1 8 2
FORCE PLANNING ISSUES	SYSTEMS COMBAT UNITS AND TACTICAL SUPPORT UNITS	GUARD AND RESERVES	CENTRAL SUPPLY AND MAINTENANCE	TRAINING AND HEALTH	TECH BASE / PROGRAM 0 / SUPPORT TO FOREIGN NATIONS
HOUSE KEEPING ISSUES	FIXED COSTS AND BASE OPERATIONS	FIXED COSTS AND BASE OPERATIONS	FIXED COSTS AND BASE OPERATIONS	FIXED COSTS AND BASE OPERATIONS	PROGRAMS 8 9 / ADMIN

The programs in the right-hand portions tend to be driven by policy issues that are less directly tied to the force planning issues. They include such programs as Technology Base Programs and Support to Foreign Nations.

The focus of a mission-area cost planning system, then, is on the upper left portion of the figure for response to force planning issues. The primary thrusts of such a planning cost system are to be able to:

1. Estimate or project the direct resource costs of the planned force structures and operating tempos in the warfare programs (including most of the National Guard and Reserve programs)

2. Estimate the indirect resource costs within the warfare programs and associate them with the forces they support

3. Estimate the indirect resource costs within Programs 7 and 8 and associate the variable portions of those costs with the forces they support

4. "Cross-walk" those force-associated costs into a mission-area structure that will give visibility to the variations in total costs associated with variations in force structures, operating tempo, and other planning issues,

5. Build up to an estimate of the overall program Total Obligational Authority (TOA) necessary to support a given planned policy mix and level in order to be able to assess its affordability.

We turn now to consider a mission-area cost planning system that would be capable of carrying out those thrusts. The conceptual Air Force Planning Cost System is used as the example.

PLANNING COST SYSTEM: OVERVIEW (USAF)

[SLIDE 10] The approach described here has been applied thus far to the Air Force only. The general approach is still being explored for both Navy and Army application.

This slide shows the major features of the system in terms of inputs, processes, and outputs. The inputs shown would be obtained from the Air Force by virtue of their program as depicted in the latest FYDP and EPA submissions. Projected flying hours and selected cost factors and supplemental cost information would also be required.

Slide 10

USAF PLANNING COST SYSTEM: OVERVIEW

INPUTS
- FORCE STRUCTURE.   FYDP AND EPA BY YEAR
- OPERATING TEMPO.   FLYING HOURS, BY A/C TYPE, BY YEAR
- SPECIFIC COST FACTORS: E.G., AFR 173-13
- EPA DATA   PROCUREMENT, RDT&E, MILCON

SYSTEM PROCESSES
- ESTIMATING RELATIONSHIPS
- ALLOCATION RULES FOR SUPPORT COSTS
- MISSION AREA STRUCTURE

OUTPUTS
- PROJECTED O&S COSTS AND TOA
   - BY CLUSTER, MISSION AREA, MISSION OR STRATEGY
   - BY APPROPRIATION
   - BY FYDP PROGRAM

The system processes serve to organize the information, to project estimates of operating and support (O&S) costs, and to allocate or associate support costs to the combat mission areas. The processes also incorporate computational modules used to compute intermediate data products, such as projection of O&M costs for a specified aircraft type and flying hour program, using service planning factors. A series of estimating relationships has been developed for the planning cost system based on historical data.

The outputs can be generated in a variety of levels of aggregation, depending on the interests of the user.

As indicated on the previous slide, the major cost estimation and allocation or association problems involve the operating and support costs. The example, therefore, focuses on the processes involving O&M and military personnel cost estimation and association with the force programs they support.

OVERVIEW OF O&M PROJECTION PROCESS

[SLIDE 11] The approach to the estimation of O&M is similar in FYDP Programs 1, 2, 4, and 5, deriving from the fact that these programs contain most of the major force program elements. Programs 7 and 8 contain supporting activities and are estimated somewhat differently.

The general buildup to total O&M, using estimating relationships (ERs), may be seen by reading vertically down the left side of the figure. The figure also indicates (on the right half) that the estimation process will accumulate the variable (i.e., variable with force structure and operating tempo) portions of the O&S costs by PE, mission area, and

mission. The general methodology for the estimation of O&M within each program follows.

Slide 11

OVERVIEW OF O&M PROJECTION PROCESS
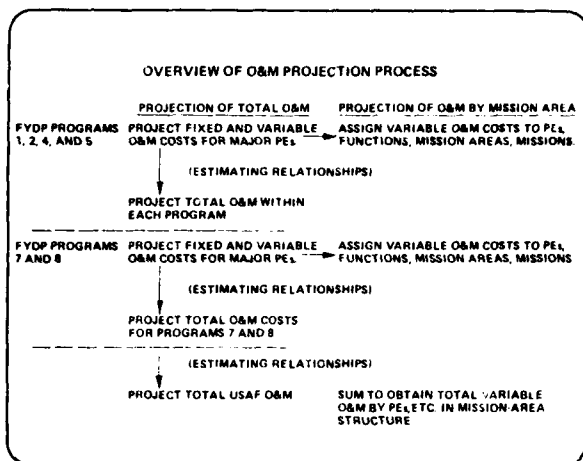
FYDP Programs 1, 2, and 5

o   Estimate <u>variable</u> O&M in <u>each major force PE,</u> using service planning factors (AFR 173-13) and a selected force structure and flying hour program (operating tempo), crosswalk to mission area structure. An example would be the B-52 PEs. For specific numbers of aircraft and planned flying hours per year, the variable costs can be projected and then crosswalked into the mission-area structure within the Strategic Warfare mission.

*   Estimate <u>fixed</u> O&M cost in <u>each major force PE</u> or grouped PEs, based on analysis of USAF O&M accounting data, crosswalk to mission-area structure. Again, using the B-52 PEs as an example, the fixed costs can be projected and crosswalked into the Strategic Warfare mission.

*   Identify from analysis of historical data, a "driver" set of <u>direct-support</u> PEs within each FYDP program (e.g., Base Operations Support and Real Property Maintenance) which, when taken together with the major force PEs consistently, over time, account for a large, relatively stable fraction of the total O&M within each program. Project costs with an estimating relationship and crosswalk variable costs to the mission-area structure.

*   Project the <u>total O&M</u> for each FYDP program, based on an estimating relationship that relates the O&M in the

major force PEs and in the "driver" direct-support PEs to the total program O&M, crosswalk variable costs to mission-area structure.

*   Compare all relationships determined from historical data with projected relationships reflected in the current FYDP. Reconcile any differences via consultation with appropriate USAF offices. Revise as necessary.

FYDP Program 7

*   Identify a subset of "driver" PEs that satisfy the following critera: (a) consistently account for a large fraction of total program O&M; and (b) have significant variable cost component (i.e., variable with the principal measures of activity — flying hours, number of aircraft, endstrength).

*   Project the O&M in the "driver" PEs, based on historical relationships to the principal activity measures. Deport Maintenance is an exception, in that it is projected using USAF planning factors for each type aircraft and the associated number of aircraft and flying hours program.

*   Estimate the variable portion of O&M for each of the "driver" PEs. This is the amount to be allocated.

*   Using the allocation rules and algorithms developed, allocate to major force PEs in Programs 1, 2, 4, and 5, the variable portions of the O&M in each of the "driver" PEs.

FYDP Program 8

*   Estimate total O&M Program 8, using an estimating relationship that relates Program 8 O&M to O&M in Programs 1 and 2.

*   Distribute the total program 8 O&M to major subprograms within Program 8 (Individual Training, Training Support, Health Care, Personnel Procurement), using an estimating relationship that is based on a stable historical distribution of Program 8 O&M among these subprograms.

*   Allocate the Program 8 variable O&M to major force PEs in Programs 1, 2, 4 and 5, using allocation rules and algorithms developed.

Given that the total O&M within each of the programs has been estimated, total Air Force O&M can be projected, based on a historically derived estimating relationship that shows that sum of O&M in FYDP Programs 1, 2, 5, 7, and 8, is a constant fraction of total Air Force O&M.

Within the mission-area structure, the variable O&M costs (variable with force structure and operating tempo) have been projected and assigned at the program element level. Those variable O&M costs may be aggregated at the cluster, mission area, or mission level, depending on the issues being examined. The non-variable O&M costs, the residuals of the projection process, can be treated as fixed costs within the mission-area structure.

[SLIDE 12] We can examine the O&M cost projection process in more detail by taking USAF Program 1 O&M as an example.

Slide 12
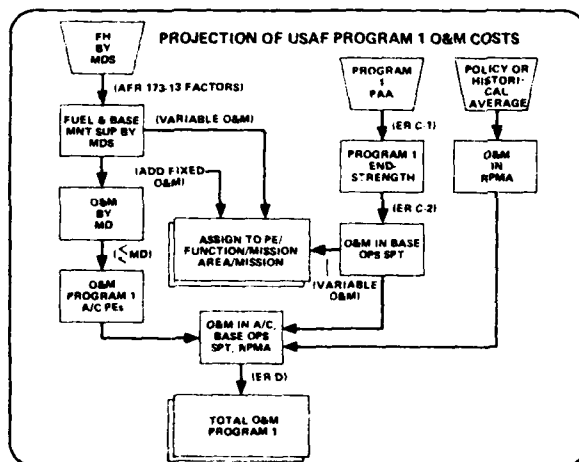
Projection of USAF Program 1 O&M Costs

The process for projecting Program 1 O&M costs is as shown here. The process shows, reading down the left side of the slide shown, that the number of each type of primary authorized aircraft (PAA) and the flying hours (FH) program for each model/design/series type of aircraft is applied to an estimating relationship, using a set of factors to obtain the estimated O&M costs of fuel and base maintenance supplies. Those O&M costs are assigned within the mission-area structure. The fixed costs are estimated by model/design type of aircraft from element of expense data and assigned as well. Summing the costs over all model/design types of aircraft yields an estimate of the O&M in the aircraft programs.

The second part of this process is the estimation of O&M in base operations support (BOS) and Real Property Maintenance Activities (RPMA). The process first projects Program 1 endstrength on the basis of Program 1 PAA (PAA = primary authorized aircraft) and, in turn, projects O&M in BOS on the basis of Program 1 endstrength. The data underlying ERC-1 and ERC-2 indicate that BOS is almost totally variable with PAA. Program 2 RPMA O&M does not vary in any regular fashion with any of the major activity variables (flying hours, PAA) or with endstrength. Therefore, it can be treated exogenously as a policy variable or else estimated by its historical average value, which is remarkably stable, and, in any case, as a fixed cost relative to the activity variables.

The total O&M for the aircraft PEs, as well as the "driver" direct support PEs, have been projected. Estimating relationship D (ER D) is used to project the total O&M in Program 1, based on the statistic that over the 10-year period, 1972-1981, 77.5 percent, ± 2 percent of total Program 1 O&M is accounted for by the sum of O&M in Aircraft, Base Operation Support, and Real Property Maintenance.

Each of the other major programs in the FYDP, as shown previously in the overview, follows a similar process in estimating costs and allocating them into the mission-area structure, as well as building toward an independent estimate of total O&M by program.

The other component of the operating and support cost structure is that of military personnel costs. An overview of that process is shown next.

PROJECTION OF USAF ENDSTRENGTH AND MILITARY PERSONNEL COSTS - OVERVIEW

[SLIDE 13] The general methodology closely parallels that which is used to project O&M. Briefly, the process is as follows.

- For Programs 1, 2, 4, and 8, estimate endstrength totals for each program, using ERs specific to each program.

  - For Programs 1, 2, and 4, use service planning factors to allocate variable. Endstrengths, based on changes in force levels to major force PEs and FYDP base to allocate fixed endstrength to these major force PEs.

PROJECTION OF
USAF ENDSTRENGTH AND MIL PERS COSTS

PROGRAM & SUBPROGRAMS	DRIVER VARIABLES	METHOD	ENDSTRENGTH & MIL PERS COSTS
1, 2, & 4 MAJOR PE's	AIRCRAFT	PLANNING FACTORS EST RELATIONSHIPS	VARIABLE TOTAL
8 IND TNG, SPT OF IND TNG,	ENDSTRENGTH IN PROG 1,2, & 4	EST RELATIONSHIP	VARIABLE
HEALTH CARE		AVERAGE	FIXED
8 TOTAL		EST RELATIONSHIP	TOTAL
TOTAL USAF	PROG 1, 2, 4, & 8	EST RELATIONSHIP	TOTAL

- For Programs 1, 2, and 4, allocate remaining endstrength to remaining PEs on a proportional basis, using the FYDP to determine percentage distribution.

- For Program 8, use ER to allocate endstrength to Program 8 subprograms, Individual Training and Support of Individual Training, and allocate endstrength to individual PEs on the proportional basis, using the FYDP to determine percentage distribution.

- For Program 8, subprogram Health Care is estimated as fixed level (as modified by USAF policy input) and allocated to individual PEs on a proportional basis, using the FYDP to determine percentage distribution.

- For Program 8, allocate remaining endstrength to remaining PEs on a proportional basis, using the FYDP to determine percentage of distribution.

- Project total USAF endstrength, using an ER that relates total endstrength to the sum of the endstrength of Programs 1, 2, 4 and 8. Assign the incremental endstrength to all remaining PEs on a proportional basis, using the FYDP to determine percentage distribution.

- Calculate MilPers costs for each PE by multiplying endstrength by average military pay.

- Map endstrength and MilPers costs to the appropriate function/mission area/mission.

- Allocate variable Program 8, MilPers Costs to all endstrength PEs, using the allocation rules developed for Program 8.

[SLIDE 14] In summary, the conceptual USAF mission-area planning cost system is a relatively clean and direct system that can be well supported in historical data. It is based firmly on ,.umber of aircraft by type and flying hours. The allocation of variable O&S costs to the force activities they support gives greater visibility to the "full" costs of those activities. The ability to build up to an estimate of total USAF O&S costs, coupled with major investment estimates, allows an independent estimate to total USAF obligational authority.

From a methodology perspective, it offers, conceptually, a common structure and methodology for use within OSD and USAF, as well as between them in examining planning issues in the out years of the FYDP and in the EPA years. It associates ownership and operating costs with the major forces they support, to give visibility to the total costs associated with those forces. It offers a mission-area structure that gives a unique and consistent association of programs serving like functions. It offers a relatively simple, flexible and "roughly right" means of examining planning issues.

SUMMARY

[SLIDE 15] The mission-area planning cost system as a whole is still in the feasibility study process. The mission-area structure portion has been very nearly completed with the submission of the proposed structure and completion of several review and revision cycles. That part of the effort continues at a low level in support of the review and coordination of candidate mission area structures within OSD.

The conceptual USAF planning cost system has been developed to the point where it is considered feasible for preliminary design; that is, the conceptual USAF planning cost system is being reviewed in detail and worked through by example to assure ' specific, feasible system. The feasibility studies of planning cost systems for the other three services continue. Some significant challenges have been encountered. In the case of the Army, the highly aggregated program elements in Program 2 and the associated data problems

Slide 14

SUMMARY OF USAF PLANNING COST SYSTEM

- VARIABLES
  FORCE STRUCTURE   AIRCRAFT
  OPERATING TEMPO   FLYING HOURS

- PROCESSES
  VARIABLE O&S COSTS   ESTIMATES AND ALLOCATES TO
                         MISSION-AREA STRUCTURE
  TOTAL O&S COSTS   ESTIMATES AND BUILDS MAJOR PROGRAMS
                         TO TOTAL USAF O&S COSTS
  TOA COSTS   AGGREGATES IN MISSION AREA STRUCTURE

A significant development impacting the feasibility study of the Navy planning cost system has been the discontinuance of publication of the Navy Program Factors Manual. Although the planning factors are not being published, they are still in use by the Navy, and further work may be able to use them. However, the VAMOSC (Visibility and Management of Operating and Support Costs) data systems are in various states of development and implementation across the services and may serve as the basis for further planning cost system development. Those challenges and developments are being worked through in the study processes.

Slide 15

SUMMARY

- STATUS OF MISSION-AREA PLANNING COST SYSTEM
  – MISSION-AREA STRUCTURE
  – SERVICE PLANNING COST SYSTEMS

are formidable challenges. The leading examples of highly aggregated program elements are the three PEs--22311A, 22411A, and 22611A--covering combat divisions for Europe, Pacific, and FORSCOM respectively. There are several other highly aggregated PEs as well. Their common problem is that each PE contains many combat units, and their separation for assignment within the mission-area structure, as well as development of planning cost information, requires data at a unit level lower than divisions. Alternatives are being assessed in the feasibility study.

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CAPABILITY PROGRAMMING: RESOURCES TO ACHIEVE COMBAT CAPABILITY OBJECTIVES*

by

Mr. I. K. Cohen, Dr. J. H. Bigelow, Mr. S. M. Drezner**

Rand Corporation

'Capability programming is concerned with providing the resources required to achieve combat capability objectives. Although capability programming is our assigned topic for this conference, we believe it's important to discuss capability programming in the context of the entire Planning, Programming, and Budgeting System (PPBS).

We will be emphasizing that the support area requires increasing integration of the various stages of the PPBS. Those PPBS stages also need to be integrated with support resource requirements systems, which in the Air Force are operated by the Air Force Logistics Command. Requirements systems are also the means for executing the budget, given an approved program. We will urge further that an upgraded requirements system should estimate alternative resource capabilities and their costs to enhance programming for support.

Further, the PPBS and requirements systems need to be integrated with elements of the management systems that use the allocated resources. The deliberations that occur in programming across all resources need to be supported by good estimates of support capabilities and costs. When a decision is reached about the support resources and their costs to achieve desired capability, the issue becomes one of assuring that the intent of that decision is carried out. Thus, we suggest that the support area requires linked PPB, requirements, and management systems. We will identify a number of concepts for improving those linkages to improve inputs to the programmer as well as to help assure that implementation of programming decisions is consistent with intent.

We will suggest that, within our proposed concepts, one key means for integrating the various stages of the PPBS and related processes is by the use of analytic tools which are consistent with one another. An important

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aspect of consistency is the common use of the same weapon-system-oriented objective functions. Our proposed concept uses a set of well defined measures of capability, such as aircraft available over time and mission-capable sorties that can be generated.

We argue for decisions reached in programming to be derived and formulated in ways that make it possible for the decisions and actions in other stages of the PPBS, requirements systems, and implementing management systems to be consistent with one another.

The discussion is organized as indicated in **figure 1.**

Figure 1

CONTENTS OF THIS PAPER

- Scope

- Need for Integration

- Approaches to Capability Programming

- Role of Capability Assessment

- Summary

After defining the portion of the resource allocation process that we are dealing with in this paper, we will discuss the need for integrating the various stages of the PPBS and related processes. The PPB research now going on at Rand, sponsored by Project Air Force and OSD/MRA&L, aims to better integrate requirements estimation, with preparation of inputs to programming, with programming with budget execution with management.

We have a preferred approach to this aspect of integration. To place our preferred approach in perspective, we'll discuss a couple of alternatives, including the current approach to the preparation of inputs to programming and the relationship of these inputs to other PPBS stages and related processes. Traditionally, the programmer has been in the business of estimating the costs of required resources, given some assumptions about activity levels provided by the planning stage of the PPBS. We prefer to think of the ideal role of the programmer as that of assessing alternative levels of capabilities and costs

within the guidance provided by planning. Organizational elements associated with the other stages of the PPBS and related processes that follow programming need to assure themselves that they are behaving according to the program that has been decided upon.

"Capability assessment" is a means of providing such assurance. As an approach to ascertaining the pay-off/costs of alternative policies, support structures, war plans, resource mixes, and various other major support planning issues, capability assessment needs to be an integral part of the planning process conducted prior to programming. Given the fundamental importance of assessment, we'll say more about its role before we summarize the presentation. [See **figure 2.**]

Figure 2

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┌─────────────────────────────────────────────┐
│                                             │
│    SCOPE OF CAPABILITY PROGRAMMING          │
│                                             │
│                                             │
│    ● Elements of Force Capability           │
│        - Force Levels                       │
│        - Modernization                      │
│        - Peacetime Readiness                │
│        - Wartime Sustainability             │
│                                             │
│                                             │
│    ● Wartime Mission Focus                  │
│        - Performance Measures               │
│        - Resource Requirements              │
│                                             │
│                                             │
│    ● Focus Applies Across                   │
│        - Life Cycle of Weapon               │
│        - Resource Allocation Process        │
│                                             │
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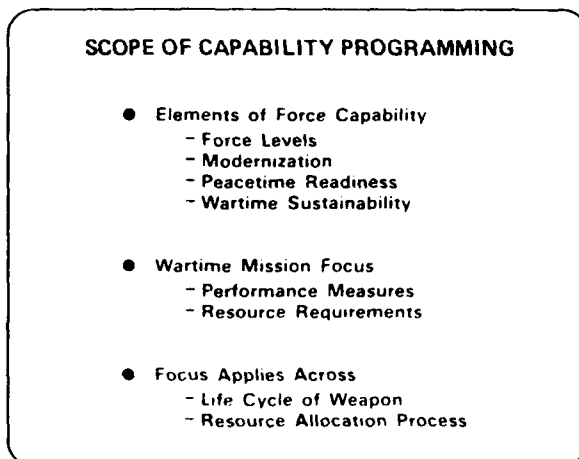
The DoD definition of capability breaks down into four components. The first two, which essentially describe the force structure, have traditionally received the most attention. By peacetime readiness we mean the ability of the forces to perform the combat missions for which they were designed. Wartime sustainability refers to the ability to continue to perform these missions over time.

Readiness and sustainability are largely dependent upon support--not only the level of support resources, but support structures and policies that must meet the needs of projected combat environments. This presentation will focus on support resources--which, by an OSD estimate, represent a third of the defense budget. The size of these costs, the criticality, and the observed difficulty in attaining desired levels of peacetime readiness and wartime sustainability suggest the importance of increasing the attention given to

improving the support aspects of the PPBS and related processes.

This readiness and sustainability focus is consistent with the increasing concern with support in DoD. Almost 4 years ago, the Defense Resource Management Study* pointed out the need to focus greater attention on support in the PPBS. Since that time, the subject has received increasing attention, within and outside the defense community. Over the same period, there has been an increasing consensus that wartime issues have escalated the need for the combat forces to be more mobile, more survivable, and more efficient in terms of aircraft sortie generation. Those critical wartime needs are in no small measure dependent on support and support structures.

Thus, an important concern at Rand is how to improve combat capability by improving the support system. Given this concern, we have focused on the PPBS as it involves support. In this presentation, our remarks will be limited to the peacetime readiness and wartime sustainability elements of force capability.

Ideally, during the development of a program, a balance needs to be struck among all the elements of force capability. Unfortunately, while our ability to analytically address requirements for force levels and modernization has been improved through such techniques as mission area analysis, our ability to make trades across components of capability is still relatively limited.

Recently, there has been significant improvement in capability assessment tools-- tools that estimate the levels of wartime capability that can be supported by specified levels of support resources. These tools differ from their predecessors in two major ways: They express capability in terms of weapon-oriented measures, such as sorties or mission-capable aircraft, rather than intermediate measures, such as backorders, fill rates, or manpower utilization rates; and, rather than being limited to consideration of the peacetime situation, they can estimate capability during the highly dynamic scenarios characteristic of wartime. (Though these weapon-oriented measures represent a marked advance over the more intermediate measures, more work needs to be undertaken to develop measures which are even more directly related to combat capability.) Tying resource requirements to wartime measures of weapon system capability--which we will refer to as

* Rand, Defense Resource Management Study, Final Report, Donald B. Rice, Feb 1979.

"ultimate" measures throughout the remainder of this paper—will enhance the importance and relevance of capability programming for support.

A wartime mission focus with appropriate scenario information and an increasing weapon system orientation in the PPBS will help make it possible to improve the support require- ments of new weapon systems. Beyond acqui- sition, these capability assessment tools are finding their way into operations to help assure the achievement of readiness and sus- tainability goals, and they are becoming available not only to the programmer, but to other participants in the PPBS.

Obviously, the support resource allo- cation process is not the exclusive domain of the organization formally assigned respon- sibility for a stage or stages of the PPBS. In the Air Force, for example, the major air commands and especially the Air Force Logis- tics Command (AFLC) and the Air Force Deputy Chief of Staff/Logistics and Engineering (DCS/LE) functional area staffs, are involved in the planning, programming, budget, and budget execution process. The assessment techniques proposed by this paper for a par- ticular PPBS stage—for example, programming— are not meant to specify at this time how the innovation is to be used by each of the or- ganizations involved in programming. In the component spares area, for example, we would expect that the AFLC would be key to the use of a programming tool innovation which might provide capability/cost alternatives. After AFLC use in concert with the operating com- mands, further utilization might continue in a more selective way by the DCS/LE staffs. Finally, the formal PPBS programming activity (the Deputy Chief of Staff/Programs and Re- sources) might choose to use the innovative tool directly or request the desired support from the DCS/LE and/or the AFLC. We will typically refer to the programming activity that is a part of the formal PPBS; however, in practice, unless otherwise stated, it is to be understood that the specific programming task might be carried out in part or in whole by an organization other than the one with formal programming responsibility.

From the outset, we have suggested the importance of relating support resources to weapon-system-oriented criteria (**figure 3**). For some resources, the relationship between requirements and such weapon criteria as available aircraft are tenuous at best. Much of base operating support (BOS) is an illus- tration of such resources. On the other hand, there are resources, functions, and echelons that can be related to the higher order output criteria.

Figure 3

RELATING SUPPORT RESOURCES TO CAPABILITY: AN INTEGRATED SYSTEM PROBLEM

● Across Categories of Resources for Units, Theater(s)
  - Spares and Repair Resources
  - Manpower
  - Munitions
  - Fuel
  - Other

● Across Operating and Support Echelons Functions
  - Flight Line
  - Intermediate Maintenance
  - Base Supply
  - Transportation
  - Depot Repair
  - Wholesale Supply Procurement

● Across Stages of the PPBS

The difficulty is that the support system is composed of many things. Not only are there many individual items that must be brought together to produce mission-capable aircraft sorties, but these items themselves are de- pendent on a wide range of resources. The items range from spare parts, to technicians, to bullets, to oil; the resources they depend on range from component carcasses to the various elements of maintenance and trans- portation capability. Further, different items and different types of resources are managed by different functional entities (e.g., supply, maintenance, transportation), which may be even further subdivided by echelons (the local or retail echelon versus the cen- tral or wholesale echelon) within the support system.

These resources, functions, and echelons are interdependent, yet they tend to be managed independently.

Integration is needed (1) vertically (across echelons), and (2) horizontally (within an echelon across resources and func- tions). Functional interdependence, especially when each functional area uses its own inter- mediate objective functions, creates con- siderable potential for resource imbalances that can directly affect readiness/sustain- ability as measured by available airframes of the combat forces.

Programming needs to account for these interdependencies, and the other stages of the PPBS must be so integrated as to help carry them through. The on-going management of al- located resources provides another critical means for assuring an integrated system of resources, functions, and echelons.

One dimension of this interdependence is illustrated in **figure** 4. This figure represents an aggregated and simplified version of a major portion of the aviation logistics support system. At the left, the aircraft symbolize the flight line, which generates particular types of sorties and sortie rates. Its goal is to have mission-capable airframes available when needed. The remainder of the system, though large in terms of resources, resource types, organizational units, and echelons, exists to support that flight line. And that support needs to be balanced. One would not wish to provide too much of one resource and too little of another to achieve a desired objective. Imbalances and misconnects can adversely affect the flight line or lead to needless costs. (An example of a programming misconnect would be to have one organizational unit with a goal to buy enough spare engines to support 100 percent aircraft availability and, at the same time, another with the goal to buy engine spare parts to achieve only 80 percent availability.)

Figure 4

INTERDEPENDENT FUNCTIONS AND ECHELONS
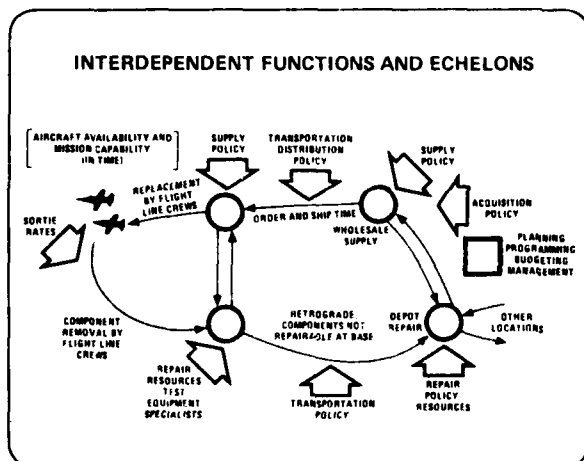
More specifically, the diagram shows the supply and repair functions at the base level supporting that flight line. Some components need to move to the depot system and back to the base via transportation networks. At the depot, we again have the supply and repair functions which provide direct support to base level supply and repair, thereby indirect support to the flight line.

If all those arrows give you the sense that the components of the system are interrelated and highly intertwined, that's the set of notions we are trying to convey. In peacetime, keeping the system in balance takes some doing; in wartime, because of unanticipated

kinds of dynamics, the difficulties in minimizing imbalances escalate. Those of us who have had occasion to examine the degree of "vertical" and "horizontal" integration in this system have identified many problems, as you might expect. Tools are now becoming available and, more important, management system orientations are being articulated that will permit routine tracking and problem isolation within this system.

Over on the right-hand side of this diagram, there is a box that enumerates the stages of the PPBS. We have identified a stage called "management" because we're concerned with ensuring that the total system operates in intended ways. But what intended ways? This begins to raise the problems of an integrated PPBS. Given our emphasis on programming in this presentation, programming needs to reflect the outcomes of the planning stage by continuing to provide the basic orientation of the total system—a wartime thrust, goals-to-be-achieved expressed in terms of "ultimate" measures, allocations among weapons systems, etc. And somehow this basic orientation must be carried out in consistent ways throughout all of the stages with appropriate feedback loops.

Figure 5 illustrates the complexities of the interrelationships in the PPBS. The role of planning is suggested by the block at the left. The Defense Guidance and the force structure are exogenous inputs to the process, insofar as logistic support resources are concerned. You will note the words capability assessment in several places in this diagram. By capability assessment we mean the estimation of capability given a scenario and a particular set of support policies and resources. The arrows within the five blocks

Figure 5

PLANNING, PROGRAMMING, BUDGETING, AND MANAGEMENT: AN INTEGRATED PROCESS
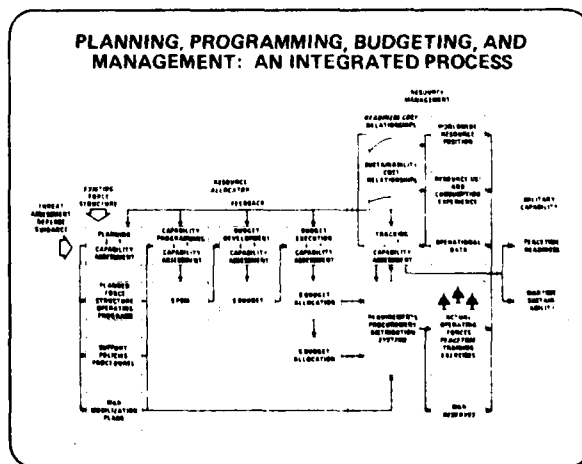
representing the stages of the process portray the fundamentally important role of capability assessment as an integral part of each stage. We mean to convey the idea here that the decision-making at each stage must be consistent in terms of capability goals with decisions at every other stage. Note that capability goals are not explicitly represented as the product of any particular stage of the process; rather, the decisions made at each stage involve trade-offs among resources, adjustments in investment levels, and reexamination of the balance among resources and the impact of such decisions on capability. Thus, although capability goals might be thought of as emerging from the planning stage, they may be adjusted by subsequent decisions in later stages.

The dollar resources that emerge from capability programming are eventually adjusted during budget development. During budget execution, budget resources are further partitioned so that meaningful operating targets are available for all appropriate functions, resource categories, and operational levels to guide the acquisition and distribution of the resources required to support the peacetime readiness and wartime sustainability of the operational forces. The diagram also illustrates the management stage and feedback loops that help ensure continued consistency of the total process and provide the basis for estimating the relationships between cost and readiness and sustainability. These relationships, in turn, support the capability assessment that is intrinsic to each of the stages of the process.

Although **figure 5** is a simple abstraction of a very complex process, it does portray the fundamental concept of capability programming as decision-making about desired levels of military capability, that is, levels of readiness and sustainability, in full light of the costs of achieving them. Implicit in this concept is the need for determining the least-cost mix of resources that will deliver the desired levels of readiness and sustainability—the problem of resource balance.

Now, we would like to address an improved method for programming—always keeping in mind the other stages of the total process. Before enumerating options, let's list some of the basic characteristics that we think are important to the programming methodology. Note, of course, that we are still limiting our remarks to support resources. [See **figure 6.**]

One problem the programmer faces is determining the extent to which he should be concerned with innovative policies, procedures, and resource mixes. The practicality

of the matter is that, within the time constraints he faces, he cannot be concerned with issues that require in-depth study over extended periods of time. This leaves to planning the significant role of concurring with or raising questions about the basic structure of the support system, the reflection of support needs in weapon system design, the kinds of capital-labor resource mixes that should exist in the support system, and the countless other critical issues that need to be addressed.

The programmer depends on an effective planning system that assures him that the basic processes for estimating resource needs reflect agreed-upon policies and procedures, and yields balanced resource mixes. Furthermore, requirements processes for estimating resource needs must also focus on "ultimate" measures that are related to operational capability. Such measures need to augment the intermediate ones that are so critical to the management of individual functional areas. Somehow, the intermediate measures need to be supplanted in the programming process by the more ultimate performance measures. Since the programmer faces resource constraints, and since we're unable to specify detailed rules for the allocation of shortages, we're dependent on judgment to deal with this pervasive allocation-of-shortage problem. The methodology must allow the programmer to exercise his judgment.

One means of doing this is to provide him with a very wide range of alternative capabilities by weapon system. This means that for each weapon system there should be resource requirement estimates for selected variations in the wartime planning scenarios: The flying

profile might vary over time, the arrival of certain repair support to the theater might vary, and so on.

Furthermore, the consequences of variation in peacetime flying programs, modification schedules, aircraft and engine overhaul schedules, and the like must also be made explicit. This list is not infinite; however, if the programmer is to do his job, we must make available to him the resource implications for alternative operational capabilities. And we must make those alternatives available in usable fashion--no small task.

This methodology must take into account the balanced support for all of those functional areas and echelons we talked about earlier. Thus, when the programmer wishes to "twist the knob" for a particular resource, its consequences for total system output as well as for resource imbalances must be made known to him. So, balance is important for each alternative that the programmer reviews.

It's not unlikely that, during the POM process, decisions will be considered or made in one area or perhaps in one weapon system that will have dramatic resource allocation effects on other parts of the system. The methodology needs to be flexible enough to accommodate rapidly to such dramatic decision changes.

Finally, given that the decisions are made, there is the critical matter of how to assure appropriate implementation. This is not merely a matter of discipline. We need tools that are used in the various stages of the PPBS and related processes to be consistent with one another. Decisions are made that apply to the future, but the uncertainty surrounding the factors underlying the decisions changes over time. Changes will be necessary for both controllable and uncontrollable reasons. To complicate matters further, support is made up of many things involving many people throughout the organization.

The problem, then, is to search for methods and management systems which are to implement the selected program and assure that it provides appropriate guidance for the later stages of the PPBS and other related processes.

In **figures 7–10**, we will be discussing capability programming methodologies. To place our preferred integrated system approach in perspective, we'll first talk about the "current" system. Since this presentation is not the proper place for providing many details, we've put in quotes the word "current" system, to indicate that we're generalizing

Figure 7

CAPABILITY PROGRAMMING METHODOLOGY APPROACHES

● The "Current" System

● Augmentation to the "Current" System

● An Improved Integrated System
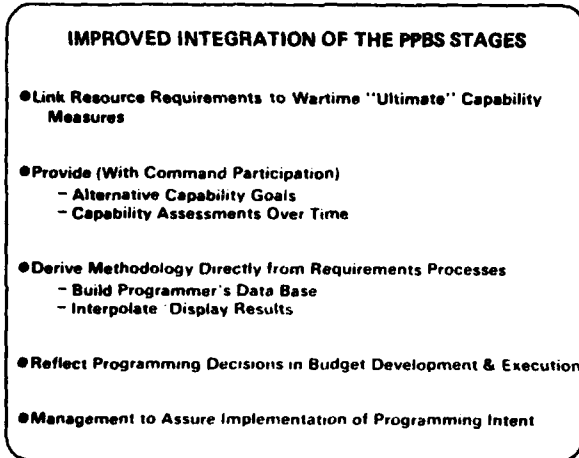
Figure 8

THE "CURRENT" SYSTEM

● Characteristics
  – Requirements for a Single Program
  – Estimates Alternatives via Average Cost Factors
  – Uses Intermediate Objectives

● Strength of Approach
  – Methodology used in Execution
  – Consistency in Programming and Execution

● Limitations of Approach
  – Intermediate Performance Measures
  – Factors Represent Average, Not Marginal, Costs
  – Management Control Inadequate

Figure 9

THE "CURRENT" SYSTEM WITH THE AUGMENTED-POM-FUNCTION APPROACH

● Models built Specifically for Programmer's Use

● Strengths of Approach
  – Introduces Measures of Operational Capability
  – Avoids "Average Cost"

● Limitations of Approach
  – Not Consistent with Execution
  – Lack of Uniformity in Assumptions and Objectives at Lower Echelons
  – No Attention to Management Controls

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Figure 10

IMPROVED INTEGRATION OF THE PPBS STAGES

● Link Resource Requirements to Wartime "Ultimate" Capability
    Measures

● Provide (With Command Participation)
    – Alternative Capability Goals
    – Capability Assessments Over Time

● Derive Methodology Directly from Requirements Processes
    – Build Programmer's Data Base
    – Interpolate Display Results

● Reflect Programming Decisions in Budget Development & Execution

● Management to Assure Implementation of Programming Intent

and abstracting to permit discussion of the main points as we see them. Also, the services have plans for improving the current system. The Air Force, for example, is working toward improvements in the reparable spares area that make an improved integrated system feasible. With these caveats, let's move on to the current system.

Let's use a particular functional area as a specific illustration of the current system. In the supply arena, as you all know, the computation of requirements is done with large, computer-based systems. Within the Air Force those computations are accomplished by AFLC.

It is characteristic of these systems that, although requirements may be based on some levels of anticipated wartime and peace-time activities, typically one set of requirements emerges from the computation: "the requirement," partitioned into peacetime operating stock (POS) and war reserve material (WRM). Since programmers must often adjust the requirements to reflect changes in anticipated activity levels, and since the requirements computation systems are too large and cumbersome to be used to reestimate requirements, repeatedly, a common practice is to develop average cost factors (such as average cost per flying hour), at least for the POS portion of the requirement. In the event that it is necessary to evaluate alternative peacetime activity levels, the programmer subtracts the original activity level from the new one and multiplies the difference by the cost factor to calculate the change in the POS requirement.

This procedure assumes that the dollars spent on POS in any given year are proportional to the peacetime hours flown in a year,

one procurement lead time later. (The procurement lead time for reparable spare parts averages between 1 and 2 years. It is the time required to obtain a new item from the manufacturer, once the money to purchase it is made available.) The analogous procedure works well for resources that are actually consumed by flying aircraft, such as POL, but in the case of reparable spares, most of the current inventory will be carried over into the future year in question to help support the then-current peacetime flying program.

To illustrate: One procurement lead time from now--i.e., 2 years--there will be spare components for POS on hand from three sources: (1) items now on hand that are not condemned or otherwise disposed of in the next 2 years; (2) items now on order from manufacturers that are received within 2 years; and (3) items that we order this year. The dollars spent now on POS only determine the numbers of items from source three. But in any year, items from this source will amount to only perhaps 10 percent of the total inventory, the other 90 percent being from sources one and two; that is, the dollars being spent _now_ on POS are estimated to increase the number of hours that can be flown by perhaps 10 percent (this will differ across items, but we will use 10 percent for this illustration).

Thus, if the programmer were asked to determine the resource implications of reducing the flying program by 10 percent, he should answer that such a decision would make it unnecessary to buy any additional POS. By contrast, the average cost procedure would estimate that the POS requirement would decline by only 10 percent. Conversely, if the programmer were asked to determine the implications of a 10 percent increase in the flying program, he should answer that the POS requirement would double. The average cost procedure would estimate only a 10 percent increase in the requirement for POS.

A second problem with the average cost procedure is that, as it is used today, it allocates all costs for POS to peacetime flying hours. But there are other peacetime activities that require spare parts to be on hand, notably modification programs, engine overhauls (for spare engine parts), and scheduled depot-level maintenance of aircraft. If any of these other programmed activities are changed during the PPB process, the programmer should estimate an effect on the POS requirement. The average cost procedure estimates no effect.

Another practice is to change the factor because it doesn't look right or is too big. This can aggravate the kinds of imbalances

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that we alluded to previously. To complicate matters further, these supply requirements systems which provide input to the programmer speak their own language—backorders, fill rates, etc. If each functional area uses its own objective functions, trades across functional areas becomes exceedingly difficult. The common use of more "ultimate" measures helps a functional area focus its activity toward outputs which have more consistent and more direct effects on weapon system capability. In addition, this common use facilitates resource trades.

There are important positive lessons to be learned about the current system which need to be remembered for any new system. The Air Force supply requirements system (maintained and used by the AFLC) has data about components, their characteristics, including their demand rates, and their costs. Such data are of direct interest to programming, budget execution, and management. Each of these stages needs to use and process such data to help assure that supply and repair functions are allocated the intended resources and that these resources are used as intended. In principle, the current supply requirements systems can provide a common data base and appropriate models for several stages of the PPBS and related processes. However, without important upgrading, its use to provide consistent data and models for the several PPBS stages is not possible. If it were possible for the programmer to make decisions in the context of the supply requirements systems, consistency across programming, budget execution, and management of supply and repair functions would be significantly enhanced.

From all that has been said and implied, it's not difficult to anticipate the limitations of the current system as suggested on this chart. Perhaps one further thought has been introduced. It is not only necessary that programming and execution from budgetary points of view be consistent. It is also necessary for adequate controls to be established, during the use of allocated resources, so that all levels of support management behave consistently and adjust jointly to the necessary changes that follow programming decisions.

The "current" system's limitations have sparked a number of important efforts in support of the POM process. Until recently, those efforts were limited to helping the support functional areas defend their resource requirements. Still more recently, because of the execution and management problems created by the augmented POM efforts, there has been concern with providing the means to tie the "enhanced" programming activity to other

stages of the PPBS. In the supply area, for example, the Air Force has adopted requirements-like models (in place of the AFLC requirements models touched on above) to support the POM process. These models place increased emphasis on the more "ultimate" measures, like weapon system availability.

Meanwhile, however, the AFLC requirements system has continued to execute its available funds based on intermediate measures. Thus, the connection between programming, execution, and management is lost. The introduction of separate requirements-like models as augmentation to the POM process has also permitted the computation of marginal resources needed rather than reliance average cost factors. Important efforts are underway to incorporate such relevant features into AFLC requirements processes.

The introduction of specially tailored models during the POM process has filled an important vacuum. They have served the support community well. However, they have their problems, as shown in **figure 9** under "Limitations of Approach."

We hope that the sense of **figure 10** has been anticipated from what has previously been said. It is concerned with the improved integration of the stages of the PPBS, with special reference to programming methodology.

As a start, resource requirement estimation must be linked with more meaningful measures of merit (to use a phrase associated with the current Commander of the Air Force Logistics Command). These more "ultimate" measures must be used in the context of wartime planning scenarios. It is idle to talk about resource needs without knowing the jobs to be done, including the desired effectiveness goals. This doesn't mean that we shouldn't face up to the probable reality that wars will not proceed according to our plans. It does mean that planning must be done within a scenario context, and the scenario must be designed to take care of reasonable variations. (The choice of models used for relating resources to capability also contributes to the "robustness" of plans. Research is underway at Rand, for example, examining the extent to which dynamic inventory models provide more capability than do steady state models to fly variations in war plans.)

The reality of the programmer's world is that he needs to evaluate not only a single plan but variations to the plan. He also needs to understand the capabilities that will be produced over time under each of the alternatives. The estimation of capability over

time is obviously important because investments do not produce capability immediately; there are lead times involved in producing that capability.

Identifying alternatives and estimating the resource requirements to satisfy each of these alternatives is not a cookie-cutting process—despite the grand models that are developed to serve this purpose. In developing alternatives and judging the capability that might be delivered for each of them, it is mandatory that the combat commanders participate actively. Such participation is likely to increase the validity of the alternatives generated and the assessments made.

The goal is to build into AFLC requirements processes appropriate objective functions and the ability to generate alternatives and capability assessments over time. Some of these alternatives would be played out by this requirements system. This would produce a data base to enable the programmer to interpolate and display results of particular interest to him. Even given that programming decisions would now be consistent with requirements systems and major elements of the execution system, it still is necessary to set up the mechanisms which will assure consistent implementation of the program by management following budget execution.

Figure 11 provides a more detailed view—though obviously very conceptual—of elements of the proposed system. The figure consists of three columns, which we will discuss one at a time, from left to right.

The first column tells the programmer to pick several desired capabilities for each weapon system within the basic guidance provided by planning; that is, programming entertains marginal changes only to plans provided by planning. The target capabilities—A, B, C, and so forth—might differ from one another in terms of operations and support goals. For example, on the operations side, peacetime flying hours might vary from A to B to C, or perhaps the profile of wartime sorties flown might vary. On the support side, the amount of repair capacity that accompanies a deploying unit might vary and/or the length of time that deploying units would be in isolation from CONUS resupply might be different for each capability. The collection of capability descriptors should be rich enough that requirements for all resources of interest can be estimated from the descriptors in the list, without the aid of quantities excluded from the list. We have, therefore, included peacetime flying hours in the list because support requirements depend heavily on this quantity.

CAPABILITY PROGRAMMING:
A CONCEPTUAL ILLUSTRATION
PROGRAMMER'S PLAN BY THEATER
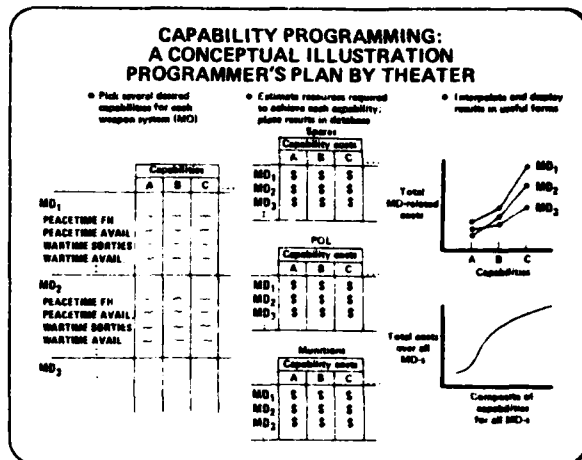
The second column indicates the need to estimate various categories of resources required to achieve the alternative capabilities (in the Air Force case, this would be accomplished at AFLC), and place the results in a data base. To the extent possible, resources should be identified to specific weapon systems; even where the same resource is used for several weapon systems, as in the case of POL, it will often be possible to apportion the resource intelligently across weapon systems. For some resources, however (e.g., certain ground support equipment), this may not be possible. We therefore prefer to think of the estimated resource requirements in the data base as weapon-related increments (or decrements) to a base of the non-weapon-related requirements.

The third column shows two kinds of displays that might be created from the information in the data base we have just described. The display at the top shows total costs by weapon system for each capability goal. Although this display refers to "total MD-related cost," the reader must keep in mind that not all costs can necessarily be associated with individual weapon systems. Thus, not all costs would necessarily appear in this display. Moreover, while the display shows lines connecting the alternative capabilities for each weapon system, the lines are merely to make it easier to identify which points are associated with which weapon systems. The reader must keep in mind that the alternative capabilities for a weapon system do not form a neat, linear sequence. Indeed, peacetime flying hours for, say, the F-15 might be greater in alternative "A" than in "B," while the desired wartime sortie rate could be greater in alternative "B." Which alternative should be considered as demanding the greater F-15 capability?
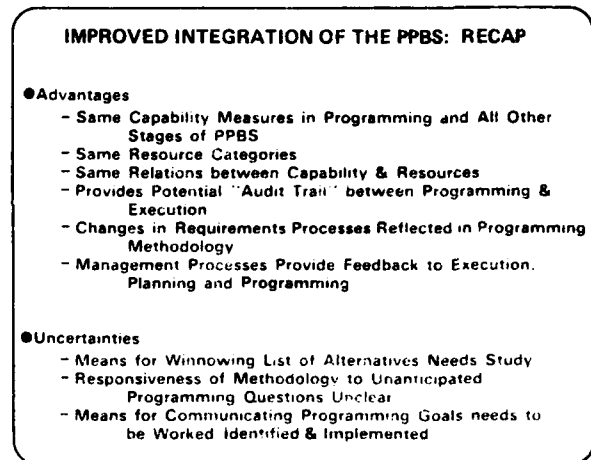
The display at the bottom is an attempt to put all of the costs on a single display. To construct the leftmost point on this display, the programmer would select a minimum capability alternative for each weapon system, and add all the associated weapon system-related costs as well as the residual, "base case" cost. To generate a point to the right of this initial point, the programmer would choose to increase the capability of one of the weapon systems, perhaps replacing alternative "A" for the weapon system with alternative "B," and adjusting the cost accordingly. To generate another point, the programmer would select another weapon system, or perhaps the same one, improve its capability, and make the appropriate adjustment to the cost. The curve thus generated would reflect the programmer's own sense of the relative priorities of different capability levels for the various weapon systems.

The title of the figure refers to the "programmer's plan by theater."* We feel that a separate set of tables for columns one and two should be developed for each of the planning scenarios in the Defense Guidance (and perhaps additional plans, besides), rather than a single set of tables for a single "worst case" scenario. Then, the resources required to be simultaneously prepared to fight any one of the theater plans could be estimated by somehow combining the requirements estimated for the individual plans. (We haven't yet worked through all the details of how to combine resources across plans, or what this would imply for displays that a programmer might wish to have available.) The reason that we favor the explicit use of multiple plans to the use of a single "worst case" scenario is that the requirements for different resources may be maximized by different plans. Thus, no single scenario may require "enough" of all resources unless it is so demanding in so many respects that it requires too much of many resources.

The top half of **figure 12** provides a recap of the positive attributes of an integrated PPBS.

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* Each scenario in the Defense Guidance describes a hypothetical conflict in a different theater. In addition, there are operational plans developed by the services, which also posit conflicts in given theaters. The "programmer's plan by theater" could be any of these. It is important to realize, however, that, while we intend each theater plan to envision conflict in a different theater—or perhaps combination of theaters—we require that each plan describe the activities of the worldwide forces, and not merely the engaged forces.

Figure 12

IMPROVED INTEGRATION OF THE PPBS: RECAP

● Advantages
- Same Capability Measures in Programming and All Other Stages of PPBS
- Same Resource Categories
- Same Relations between Capability & Resources
- Provides Potential "Audit Trail" between Programming & Execution
- Changes in Requirements Processes Reflected in Programming Methodology
- Management Processes Provide Feedback to Execution, Planning and Programming

● Uncertainties
- Means for Winnowing List of Alternatives Needs Study
- Responsiveness of Methodology to Unanticipated Programming Questions Unclear
- Means for Communicating Programming Goals needs to be Worked Identified & Implemented

Because the programmer's data base would be constructed by playing out alternatives through the AFLC requirements system, the programmers would necessarily use the same measures of capability as were used in the requirements estimation and budget execution stages of PPBS (currently, in the supply arena, the requirements system is used in both stages). Thus, once the requirements system has been modified to respond to "ultimate" measures of capability, those same "ultimate" measures would be available to the programmer. (This does not mean that functional areas would be denied their intermediate measure.) Similarly, the resource categories used in programming would exist in other stages, and the tie between capability and resources would be the same throughout the system.

Given that the same requirements processes are used in programming, budget execution, and management, additional benefits would accrue. It becomes possible, for example, to establish an audit trail through those stages. Furthermore, we hope (and expect) that the requirements system will be updated from time to time with new information about demand rates, etc. Such changes will be reflected automatically in the programming methodology as soon as the next update of the programmer's data base occurs. Finally, just as guidance is to flow "down" from programming through the various subsequent stages, so it is to be expected that the management processes concerned with implementation will provide feedback to the budget execution, programming, and planning stages regarding how well their intent was achieved.

There are myriad problems associated with bringing such an integrated system into being. For example, the list of alternative capability goals that need to be made available to

the programmer could become excessively long.
We need to develop ways of cutting the list
down to a manageable number of alternatives.
It will also take some special study to "know
the full range" of questions that a programmer
might wish to have answered. Such knowledge is
obviously important so that the data base
provided to him is sufficient to do the job.
Finally, we have mentioned that there is a
need for communicating up and down the PPBS
stages. Working out the implementation details
is not likely to be easy.

We at Rand, with sponsorship from the Air
Force, Navy, and OSD, spent several years
working on the capability assessment problem.
We have emphasized assessment of the current
operational forces. These assessments have led
to many beneficial policy changes. We have
articulated management systems which are in-
tended to track weapon system support re-
sources and performance levels to determine
whether the desired wartime "ultimate" mea-
sures are being attained. These prototype
capability assessments have provided the
groundwork for pointing out the direction that
assessment needs to take in the management
stage as well as how these assessments might
affect other stages to help provide an
integrated PPBS.

We think that an idealized, integrated
PPBS will have built into each stage aspects
of capability assessment in order to assure
goal attainment. However, as the system
evolves, certain kinds of special capability
assessments will continue to play critical
supporting roles. Even as the ideal system is
approached, we expect that capability as-
sessment will continue to mature at faster
rates than the PPBS. This is because capa-
bility assessments are likely to be less en-
cumbered by issues of scale and practicality
demanded by the ongoing PPB standard system.
Thus, we see capability assessment as con-
tinuing to nudge requirements estimation and
execution systems, as well as programming
systems, in the direction they need to go.
While separate but related and consistent
capability assessment systems are likely to be
a continuing reality, we suspect that their
"separateness" will be related to the rate at
which the main line system keeps up.

The general areas in which we see active
capability assessment functions are indicated
in figure 13.

We see a never-ending concern with as-
suring the adequacy of requirements esti-
mation. As we have suggested previously, the
importance of this role is obviously related
to the ability of the requirements estimation
system to do "all" that is necessary.

Figure 13

ROLES OF CAPABILITY ASSESSMENT

● Assure Adequacy of Requirements (Assessment of Plans)

● Track Execution of Plan (Assessment of Actuals)

● Other Assessments
 - Projected Capability Over Time
 - Readiness for Alternative War Plans
 - Value of Alternative Support Policies

As plans are implemented, we see eval-
uations being used to assure that programmed
capability is achieved. We envision that man-
agers will have evaluation flags built into
their tasks so that the need for "separate"
evaluations on a frequent basis will be
largely unnecessary. Other specific uses of
these assessments are indicated under the
"Other Assessments" bullet in figure 13.

Considerable progress has been made over
the past few years in the development of
models and their uses to assess peacetime
readiness and wartime sustainability. The
following recent Rand publications are likely
to add more substantive information to the
conceptual assessment remarks made in this
paper:

● J. Bigelow, K. Isaacson, Models to
Assess the Peacetime Material Readi-
ness and Wartime Sustainability to
U.S. Air Forces: A Progress Report,
The Rand Corporation, N-1896-AF,
October 1982.

● S.M. Drezner and R.J. Hillestad, Lo-
gistics Models: Evolution and Future
Trends, The Rand Corporation, P-6748,
March 1982.

● L. Embry, Integrated Planning for
Reparable Assets, The Rand Corpo-
ration, unpublished paper.

● R.J. Hillestad, Dyna-METRIC: Dynamic
Multi-Echelon Technique for Recover-
able Item Control, The Rand Corpo-
ration, R-2785-AF, July, 1982.

● R.J. Hillestad, M. Carrillo, Models
and Techniques for Recoverable Item
Stockage When Demand and the Repair
Process are Nonstationary—Part I:
Performance Measurement, The Rand
Corporation, N-1482-AF, May 1980.

- R. Pyles, The Dyna-METRIC Readiness Assessment Model: Motivation, Capabilities, and Use, The Rand Corporation, unpublished paper.

- R. Pyles, Lt.Col. R. Tripp (USAF), Measuring and Managing Readiness: The Concept and Design of the Combat Support Capability Management System, The Rand Corporation, N-1840-AF, April 1982.

Two further comments before we leave the capability assessment study and research area: One is that we see progress being made in the use of more "ultimate" performance measures in programming and the other stages of the PPBS process.

Second, too much of requirements estimation and capability assessment assumes benign operating environments. Future wartime situations are likely to involve base damage and damage to the support infrastructure. These issues need to be faced by the PPBS. It is hard to predict how soon it will be before research on these subjects begins to have significant effects on the resource allocation process in more routine ways than is now the case.

For a Rand publication on work that is underway on estimating capability under conditions of wartime damage, the reader is referred to: D.E. Emerson, An Introduction to the TSAR Simulation Program: Model Features and Logic, The Rand Corporation, R-2584-AF, February 1982.

Figure 14 summarizes the main features of an improved capability programming system that we propose as a goal. Note the last bullet. At the outset we defined force capability to include force levels and modernization in addition to peacetime readiness and wartime sustainability. We have indicated that trades among all the elements of force capability are obviously needed but difficult to perform. We think that many of the ideas discussed provide relevant background for dealing with some of these difficult issue of trades for all resources associated with the operational forces. That is an obviously important step for the future.

Figure 14

CAPABILITY PROGRAMMING: SUMMARY

- Tie Resource Requirements to Relevant Capability Measures

- Provide Program Alternatives
    - Using Requirements Processes
    - Driven by Scenario Variations

- Build Programmers' Data Base for Interpolation and Display

- Employ Capability Assessment

- Provide for Balanced Support

- Maintain Connections from Planning through Execution & Management

- The Future: Trades Across Elements of Force Capability

A COMPARATIVE APPROACH TO MARINE CORPS PROGRAMMING

by

Major General T. R. Morgan, USMC
Deputy Chief of Staff for Requirements and Programs
Headquarters, United States Marine Corps

and

Lieutenant Colonel Robert L. Larkin, USMC
Program Coordination Branch
Requirements and Programs Division
Headquarters, United States Marine Corps

Major General Morgan: I think it's important, as we start to take a look at the Marine Corps program, to understand specifically that we are a part of the Department of the Navy and that our programming effort derives from that fact.

I was was captured by one point that was made in the previous presentation regarding the Army process--that it is very difficult to come to grips with the disconnects between the four-star levels in making decisions. We don't have that problem in the Marine Corps. We've captured all two of our four-stars right at the Navy Annex, so it's a little bit easier for us. But we do have disconnects on occasion between the Marine Corps and the Navy at that level, and part of my responsibility is to minimize that as we work the program and as we attempt to work those things that are of mutual interest between the Navy and the Marine Corps.

Today, though, we're going to talk primarily about how we organize our PPBS process, and, more specifically, how we do programming within the Marine Corps. Having said that, we're going to deal today with what we call the "green dollar" effort, that is, our portion, the Marine Corps' portion of the Department of the Navy TOA that we use for programming on the Marine Corps side. That was captured last night in that panel discussion with the percentages that were articulated for the distribution of TOA within the Department of Defense. I think it was 47 percent for the Air Force, and 29 percent for the Department of the Navy, and 24 percent for the Department of the Army. I'm not going to tell you what our percentage is, but I'd be pleased to have Tom Carney's portion (Army) any time. In developing our program, we have three decision levels. We'll call them committees. We have a POM working group, a POM coordinating group, and a Chief of Staff's committee, and they'll be explained to you. I'm going to ask Lt. Col. Robert Larkin to come up and walk you through this briefing and explain our process of how we do things. I'll pick it up at the end and talk to the process as an overview and answer any of your questions.

Lieutenant Colonel Robert L. Larkin: This is the outline that I will follow this afternoon: I'll touch briefly upon the role of planning in developing the program. I'll then show how the Marine Corps is organized for POM development and the various guidance formats that we use in that development. And then I will take you through the actual POM development process that we use at Headquarters, Marine Corps. **[SLIDE 1]**

Slide 1

*As General Morgan said earlier, there is one thing we must make clear right up front. I speak to a lot of Marines when I go out to the field who really don't understand this. There are three "POM submissions" that we make at Headquarters, Marine Corps. **[SLIDE 2]** One of them is a "green dollar" POM, the one with which I work. Not only does it include all of the green dollar Marine Corps appropriations but we also have programming responsibility

Slide 2

for the Military Construction, Navy (MCON) funding that has to do with Marines and the Family Housing Management Account, Navy, which is allocated for use by the Marine Corps. We have programming responsibility for the portions of those two accounts that apply to the Marine Corps. And, of course, there is the "blue dollar" POM. Deputy Chief of Staff for Research, Development, and Studies has the RDT&E portion, which is blue dollar (Navy) funds. He is allocated a certain amount of those funds, and he develops the research and development program that supports green dollar programs. He also plays in the arena of RDT&E as it applies to blue dollars and blue-dollar-funded programs. But he does build a separate submission for Marine Corps programs, RDT&E. Of course, the aviation portion of the Marine Corps comes under blue dollar programming, and the Deputy Chief of Staff for Aviation plays very closely with the Navy in that arena.
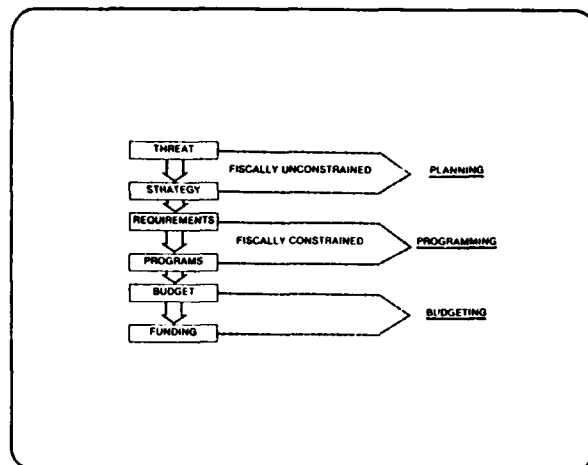
As every service does, we have our diagram that shows how planning starts off everything as we analyze the threat and work it into the strategy as shown in the Defense Guidance. **[SLIDE 3 & 4]** We loop these two together, the plans and the requirements, through what we call the Marine Corps Mid-Range Objective Plan, the MMROP. **[SLIDE 5]**

In the past, this plan was totally unconstrained fiscally. It had really little relationship with programming and was very difficult to translate into the POM. In the last two years, we have taken steps to bring programmers more into the writing of that particular document, and they now work very closely with the planners. We now have a separate chapter within that document that takes the mid-range plans and translates them into programming objectives so that the programmers have a base document directly from the planners that they can use as they develop the Marine Corps program.
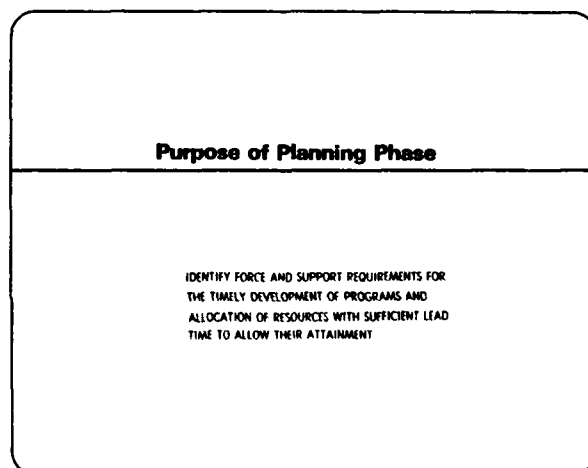
Of course, as those requirements are being developed, we have the requirements section of Requirements and Programs validate them and pass them on to me and to the POM development committees, who then begin work on building the program.

The program then flows into the budget and eventually into funding and, finally, execution. The Fiscal Director of the Marine Corps picks it up as it becomes a budget, and we, the programmers, follow that budget through the POM coordination branch within Requirements and Programs. We track any actions that take place on that budget so that we get feedback as we move on to the following POM. **[SLIDE 6]** In a very simplified format,
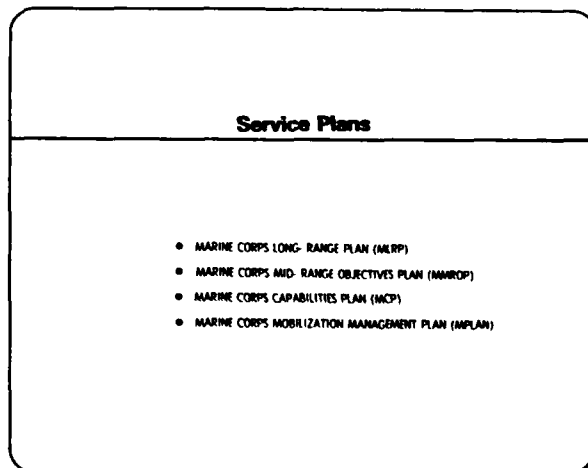
Slide 3

Slide 4

Purpose of Planning Phase

IDENTIFY FORCE AND SUPPORT REQUIREMENTS FOR THE TIMELY DEVELOPMENT OF PROGRAMS AND ALLOCATION OF RESOURCES WITH SUFFICIENT LEAD TIME TO ALLOW THEIR ATTAINMENT

Slide 5

Service Plans

- MARINE CORPS LONG- RANGE PLAN (MLRP)
- MARINE CORPS MID- RANGE OBJECTIVES PLAN (MMROP)
- MARINE CORPS CAPABILITIES PLAN (MCP)
- MARINE CORPS MOBILIZATION MANAGEMENT PLAN (MPLAN)

not only are we a link but we say that programming is actually a bridge between the planning and the budgeting. Our people are closely involved, as we do work directly with the planners in developing objectives for the programmers. Then we follow that program as it goes into the budget.

This is our version of the slide that everybody has shown--one usually with a lot of months up at the top to show the various actions that take place as we prepare to show the various impacts that we face as programmers. [SLIDE 7] As we go into building POM 85, we point out that the '83 budget execution is still in doubt. Of course, no one knows exactly how it will come out, but it will definitely have some impact upon POM 85.

The OSD review and budget '84 are still undergoing review. We are beginning to build POM 85 at this particular time. The POM committees have already started to work on it. We actually began work back in July.

These are the references--the principal references--that we use at Headquarters, Marine Corps. [SLIDE 8] We have a manual for programming and planning which delineates the broad responsibilities of the various Deputy Chiefs of Staff and their sections. It tells them exactly what they must do and how we work together. A very simple document, it's been updated just recently.

Our primary directives for POM development are POM serials. These provide the detailed guidance, direction, and schedule for building the entire program. We bring the various aspects of the program before POM development committees in the form of briefings to cover the various steps that we take as we move forward to final POM submission in May.

As I pointed out, POM guidance comes in several forms for the Marine Corps. In August of every year, we have a general officers' symposium, where all of our general officers gather at the Headquarters, and ideas are exchanged. [SLIDE 9] They are briefed on the previous POM submission and on the current status of the program as it is going through the review process. General Morgan then passes to me any guidance for the POM development committees.

CMC guidance is published in POM serial 85-1 and is the Commandant's official guidance which outlines the general direction that he would like us to take in the POM. It also provides procedural direction for POM development.
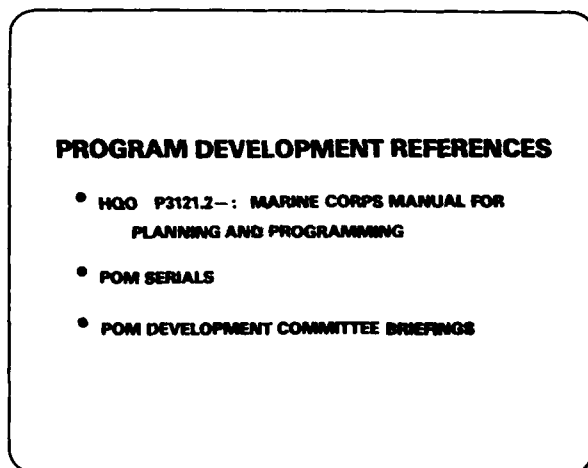
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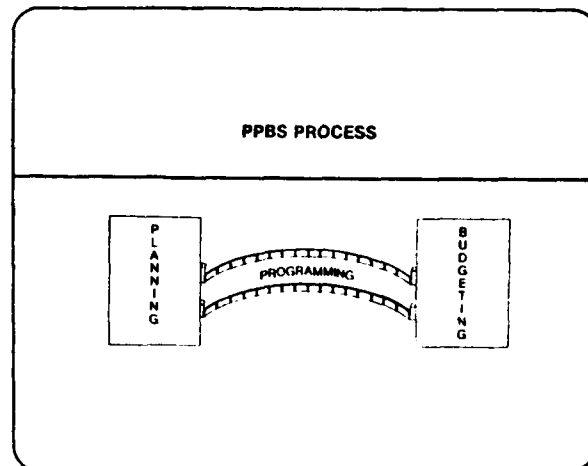
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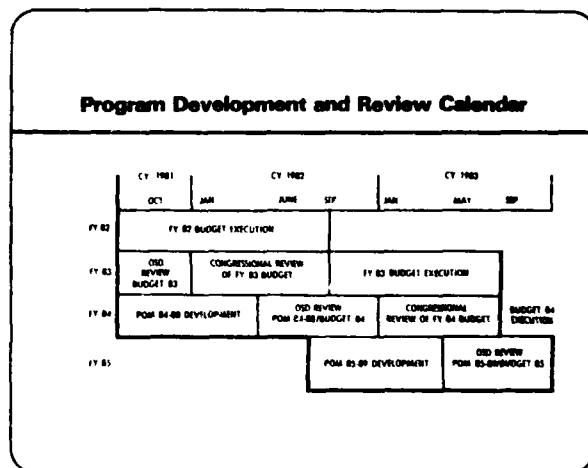
Slide 8

Of course, Secretary of the Navy guidance comes out periodically during POM development, and the Defense Guidance is published shortly after the first of the year and gives us further direction and guidance. POM serials are written memoranda for the Chief of Staff's committee. [SLIDE 10]

The first one is the Commandant's guidance. We draft that in R&P, staff it out to the various members of the Chief of Staff's committees for comment, and formulate the general direction of the Marine Corps for the development of the program. Then, the serial is issued over the Commandant's signature. We generally deal directly with programming matters on the green dollar side. However, it does address possible issues that will need to be developed within the POM cycle. These could range anywhere from the green dollar program to impacts on the Department of the Navy over all. POM development methodology, the basic schedule of how we will do our program and how we want to articulate that program, are also spelled out in general terms that allow the various Deputy Chiefs of Staff to begin work on their portion of the POM.

Another serial that comes out is the manpower structure initiatives call. As was pointed out earlier in the Army brief, the structure that we will be building toward in POM 85 has a tremendous impact on the total affordability issue of the POM. The structure drives the principal end items that we have to buy, the amount of the ammunition that we have to buy, and determines how we allocate our resources. We try to formulate that very early in the POM process. Other serials, for Procurement, Marine Corps, and Operation and Maintenance, Marine Corps, initiatives calls, go out to the Headquarters staff for input to the POM development committees. We then finish up with the POM serials containing administrative instructions in order to bring the information into the overall POM submission.

Here are some examples of those POM serials I mentioned. [SLIDE 11] Three of them have already been written at this stage, and the next one that will come out will be the procurement call. We're going to get that out in November, which will give the sponsors an adequate amount of time to take a look at their current program, take a look at the new initiatives that they want to get in for submission in a timely fashion (shortly after the first of the year) so that we can begin building that program. We go out to the field, as far as operations and maintenance are concerned, to get to the field commanders, to review what their needs are. Then, that input is brought back to the Headquarters to develop a basic program for the Marine Corps.

Slide 9

POM GUIDANCE

- GENERAL OFFICER'S SYMPOSIUM
- CMC GUIDANCE (85-1)
- SECNAV GUIDANCE
- DEFENSE GUIDANCE

Slide 10

POM SERIALS

- MEMORANDA FOR THE C/S COMMITTEE
  - CMC GUIDANCE
  - POM DEVELOPMENT METHODOLOGY
  - STRUCTURE MANPOWER INITIATIVES
  - PMC & O&MMC INITIATIVES
  - ADMINISTRATIVE INSTRUCTIONS

Slide 11

POM SERIALS

85-1 CMC INITIAL GUIDANCE & PROGRAM DEVELOPMENT PLAN
85-2 POM 84 MISSION AREA DESCRIPTIONS
85-3 MILITARY MANPOWER DEVELOPMENT PROGRAM
CIVILIAN MANPOWER PROGRAM - FIELD INPUT
O&M FIELD ACTIVITIES INPUT
CIVILIAN MANPOWER PROGRAM - HQMC INPUT
O&M HQMC STAFF SUBMISSION
RESERVE PROGRAM DEVELOPMENT
PROCUREMENT PROGRAM
POM PREPARATION INSTRUCTIONS
FYDP UPDATE
APPROPRIATION CONTROLS

We also look at civilian manpower programs, both from the field and from the Headquarters, Marine Corps staff. Reserve program structure is dealt with in the basic manpower development program, which is 85-3; however, there are additional reserve programs that come in separately under another call. And then, as I mentioned, we finish up with the last three items up there. The POM preparation instructions go out under a POM serial, FYDP update instructions follow, and then finally the appropriations controls.

General Morgan mentioned three committees that develop the POM. The Marine Corps has a very streamlined structure for POM development. We begin with the POM working group, of which I am the chairman. **[SLIDE 12]** It consists of majors and lieutenant colonels at the Headquarters, who represent the members of the Chief of Staff's committee. It is our job to take a look at the current program, and we do that to see what changes have taken place since the last POM cycle. We look to identify any deficiencies, prioritize programs, identify issues that have to be addressed by the various POM committees, and then develop alternative programs. We take a look at the total costing of the Marine Corps program and, finally, recommend a balanced program for consideration by the next committee, which is the POM coordinating group made up of one- and two-star generals at Headquarters, again representing the Chief of Staff's committee and chaired by Major General Morgan.

Now, they don't just get the final program. At various times during POM development if we have a problem at the POM working group level where we cannot resolve an issue, or if we have a major program that must have some decision made on it before we can move forward, we can refer that program directly to the POM coordinating group for consideration and further guidance. Either they give us a decision on it or they refer it up to the Chief of Staff's committee, or they send it back down to us to develop other alternatives.

Finally, when the program has been approved for submission to the Chief of Staff's committee, the program is presented to that committee, which is chaired by the Assistant Commandant.

When that program is finally approved at that level, it is presented to the Commandant of the Marine Corps, who then sits with the Chief of Staff's committee for a final review. He takes a look at the program and, if he has any questions, he resolves them at that point. He then asks the Chief of Staff's committee for any further input that they might have, any sort of late-breaking considerations that
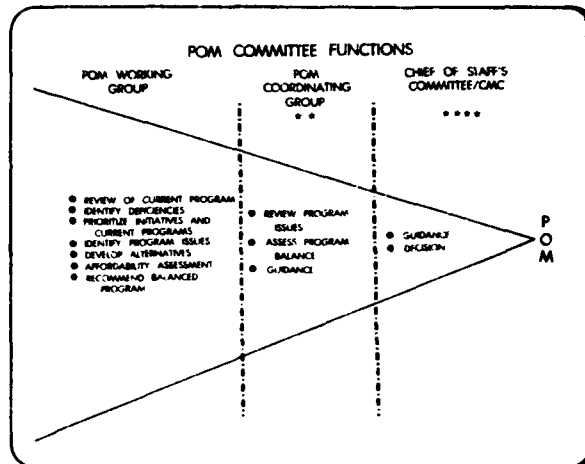
might not have been addressed thus far in POM development which they would like to bring up.

That seems to occur every year. Someone always has something that didn't get in and that is brought up at that particular time and decided, of course, immediately.

Once the Commandant has approved the program, we go back and begin the paper work for submission of the POM to the Department of the Navy. We may be developing what we call the Marine Corps POM, but it is really a part of the DON POM. We put it together—all the paper work with all the figures, all the numbers—and it goes to the Department of the Navy. They do not change any of it; it is simply integrated into the overall DON POM submission.

These are the members of the Chief of Staff's committee. **[SLIDE 13]** At the present time, the Director of Intelligence and the Director of Command, Control, Communications, and Computer Systems, C4, are the same person. One interesting item, the commanding general of the Marine Corps Development and Education Command, although not a formal member of the Chief of Staff's committee, does sit on occasion as an associate member of that committee. He is a three-star general from Quantico and, because of his involvement in the development side of many programs, he sits on that committee as needed. Now, of those total members of the committee only eight actually will be involved in submitting or sponsoring programs. Those are: manpower; aviation; reserve affairs; installations and logistics; plans, policies, and operations; intelligence; C4; and training. **[SLIDE 14]**

The DC/S for Aviation is also the sponsor of the structure for the aviation combat element for the Marine Corps. In that area he takes a look at all of the TOs and the equipment that make up the structure of that portion of the Marine Corps.

The Deputy Chief of Staff for Installations and Logistics oversees the combat service support element of Fleet Marine Force, and the DC/S for Plans Policies and Operations is the guardian of the ground combat element of the Fleet Marine Force.

By tracking the expenditure of the appropriations, the DC/S for Manpower watches the Military Personnel, Marine Corps (MPMC) appropriation. [SLIDE 15]

The DC/S, I&L, has both the procurement and the operations and maintenance accounts. The Deputy Chief of Staff, Reserve Affairs, handles the two reserve accounts: both the O&M and personnel accounts. You will note that the Deputy Chief of Staff, I&L, maintains contact with the Navy to oversee those portions of the Navy accounts for which the Marine Corps has programming responsibility: the military construction and family housing accounts.

Now, this slide is rather busy, but this is actually how we build a program. [SLIDE 16] Somewhere along the way, a person might get lost. We have to use it periodically in explaining POM development so that everybody can get back on track, but I'll walk you through it very slowly.

Obviously, we begin with the previous POM, taking a look at it and analyzing it here at Headquarters, Marine Corps. We actually begin that in the July time frame, when my committee sits down for about three days and takes a studied look at what happened in the previous POM--the methodology, what problems we had, what we can do, whether we can start sooner, or what changes we can possibly make as we go into the development of the next POM.

We have a summer planning conference in which we set up a schedule for the development of the next POM. Of course, the OSD review of the current program is underway at this time. We begin the process to move from the previous POM to what we call a core or base program which we describe as the absolute minimum essential needs of the Marine Corps--the things that we must have that we can't put up on the margin.

From the building of a core program we move to adding different items to arrive at the actual Marine Corps submit. Now, the first

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Chief of Staff's Committee

ASSISTANT COMMANDANT AND CHIEF OF STAFF - CHAIRMAN
DC/S FOR REQUIREMENTS AND PROGRAMS
DC/S FOR PLANS, POLICIES AND OPERATIONS
DC/S FOR MANPOWER
DC/S FOR INSTALLATIONS AND LOGISTICS
DC/S FOR AVIATION
DC/S FOR RESEARCH, DEVELOPMENT AND STUDIES
DC/S FOR RESERVE AFFAIRS
FISCAL DIRECTOR
DIRECTOR OF INTELLIGENCE
DIRECTOR, COMMAND, CONTROL, COMMUNICATIONS AND COMPUTER (C4) SYSTEMS
CG MARINE CORPS DEVELOPMENT AND EDUCATION COMMAND
DC/S FOR TRAINING

Slide 14

PROGRAM SPONSORS

DC/S FOR MANPOWER
DC/S FOR AVIATION
DC/S FOR RESERVE AFFAIRS
DC/S FOR INSTALLATIONS AND LOGISTICS
DC/S FOR PLANS, POLICIES AND OPERATIONS
DIRECTOR, INTELLIGENCE
DIRECTOR, C4
DC/S FOR TRAINING

Slide 15

APPROPRIATION	SPONSORS
MILITARY PERSONNEL, MARINE CORPS	DC/S MANPOWER
PROCUREMENT, MARINE CORPS	DC/S I&L
OPERATION AND MAINTENANCE, MARINE CORPS	DC/S I&L
RESERVE PERSONNEL, MARINE CORPS	DC/S RESERVE AFFAIRS
OPERATION AND MAINTENANCE, MARINE CORPS RESERVE	DC/S RESERVE AFFAIRS
● MILITARY CONSTRUCTION, NAVY	DC/S I&L
● FAMILY HOUSING MANAGEMENT ACCOUNT, NAVY	DC/S I&L

Slide 16

program development
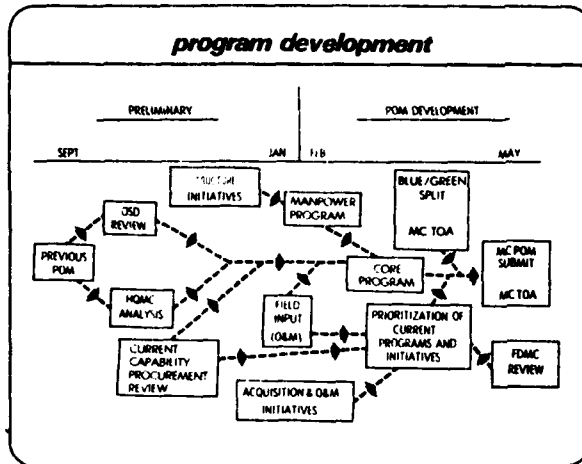
things that we work on, as I mentioned earlier, are structure initiatives and building the manpower program. We have a POM call that goes out and calls for those structure initiatives. We take a look at those different initiatives, work up a program, and then look at the manning that will go against that and place that in the core.

We also take a look at the current capability procurement review. These are equipment items we have that were approved in previous budget years of previous POMs. We review those to see if they've experienced any growth or changes, and we update them for submission in the next POM. If there is any growth or any changes to those programs, we might put those particular changes that we cannot accommodate on the margin, to be prioritized for consideration sometime later, after the core has been built.

Initiatives, of course—both acquisition initiatives and O&M initiatives—are entered into the prioritization process. As I said earlier, we do go out to the field for input on the operations and maintenance program. When we get that back, a portion of that is put into the core as we move forward to develop the program.

A key element here, which we began about two years ago by looking at about 10 to 15 programs in the first year and last year roughly around 50 and which will be expanded a little bit more this year, is the review by the Fiscal Director of the Marine Corps. He gets involved in the development of the program before it is submitted. He's presently working up a schedule to work with the POM

development committees. He will actually hold hearings on the various programs, looking over all the appropriations to check for executability of those particular programs before they can be submitted for final consideration by the Chief of Staff's committee.

And, of course, once those have all been approved and we've set up everything, we hope to get a rather large, fair share of the blue-green split from Captain Walsh (who is now laughing). I won't mention percentages, but it should be good. We give a special image to the Navy; so they should give us a good share of the TOA, and then we can get all the programs that we need.

Now, to take a look at the individual development of the manpower program: Again, we use the POM 84-88 base, the previous POM, and CMC guidance does mention where we want to go with the structure. **[SLIDE 17]** As was mentioned previously in the service brief by the Air Force, offsets are positively required here. We don't want a structure that just keeps growing. If you want to submit new initiatives, you have to try to show offsets. We want to take a look at the old problems and the new, and we try to keep it a very disciplined process. The structure call was POM serial 85-3; it provides the basic guidelines for the development of the program.

Slide 17

MANPOWER PROGRAM DEVELOPMENT
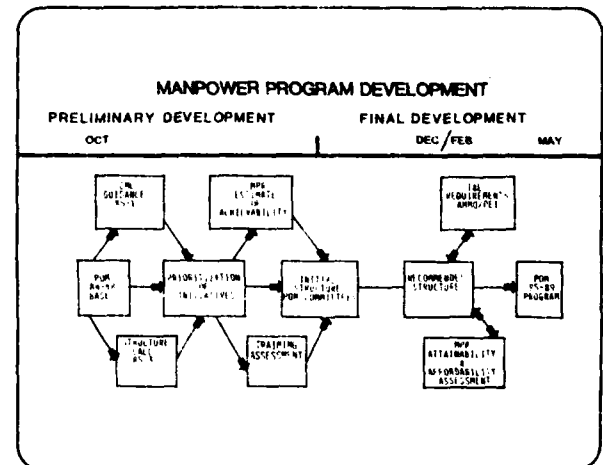
When we get all those initiatives in, we prioritize them. We use Decisions and Designs, Inc., who will be speaking to you next about one of their decision techniques to develop a prioritization of the initiatives.

We then build an initial structure for consideration by the POM committees. A

training assessment takes place at this particular time. The Deputy Chief of Staff for Training gets a copy of the initiatives, and he determines what the training impact is. You can't add a new type of weapon and just put the structure in the core if you haven't set aside, maybe, 10 percent for training and overhead. You have to pay the tax for the training of those people. That is looked at before that initiative is accepted for prioritization.

Manpower produces a rough initial estimate as to whether we can achieve the grades and skills required [If we can't, we have to go back and determine whether the timing is wrong—or maybe the whole initiative is wrong.] We then recommend that structure for consideration in the POM.

As soon as we get a total Marine Corps structure for consideration, it goes to the DC/S for Installations and Logistics, where they cost out the additional requirements for amunition, principal end items, military construction, and maybe some family housing or other additional costs.

The DC/S for manpower then goes on to a further look at both the attainability of the manpower to support that structure; of course, they cost out how much that additional manning will be. Once we get all of that information, it is submitted for consideration in the POM.

A portion or all of it may be put into the core program. For Procurement Marine Corps, we have what we call the Material Management Programming Model, the MMPM, a computer model that has all of the equipment programs for which the Marine Corps currently spends funds. **[SLIDE 18]** The MMPM is monitored by various sponsors and is updated

Slide 18

PROCUREMENT PROGRAM DEVELOPMENT

MATERIAL MANAGEMENT PROGRAMMING MODEL

CURRENT CAPABILITY FOR ACTIVE RESERVE & PWP

REVIEW & UPDATE

NEW INITIATIVES

POM SERIAL

RD AND P SUBMISSION

HQMC REVIEW RD&S (RL R&P)

POM COMMITTEES

periodically. We're running it right now, and the sponsors are reviewing it. They take a look at programs that were approved in previous POMs to see whether the funding profile that's in there is current, whether there are any changes in the requirements for that program. And they update it so that we will have a base of what the current capability equipment costs the Marine Corps. That includes both the equipment to support the active and reserve forces and prepositioned war reserve levels. The model is sensitive enough to produce several funding levels of principal end items so that we can look at how much we want to put into core and how much we can possibly build to, depending upon what our TOA is.

A POM serial then goes out to tell the sponsors to submit new procurement initiatives. They are reviewed at our Headquarters by the Deputy Chief of Staff for Research, Development, and Studies (RD&S), who determines whether they are coming on line properly and are ready for procurement.

They are reviewed by the Deputy Chief of Staff for Installations and Logistics to determine the logistics supportability of those particular initiatives. Finally, they are submitted to R&P, where we validate the requirement, and the initiative is then forwarded to me for consideration in POM development.

If any of the initiatives have a manpower tail or other problems with it, they are submitted via the Deputy Chief of Staff for Manpower or the Deputy Chief of Staff for Training to determine whether they have any training impacts. They are completely checked out before they arrive at my desk for consideration by the POM committees.

O&M is essentially the same. **[SLIDE 19]** We go out with a field call, and we also have to keep the Headquarters functioning. So, the various agencies at the Headquarters also submit initiatives in the operation and maintenance area. These are all submitted directly to the Deputy Chief of Staff for Installations and Logistics, who builds a core program which keeps the Marine Corps functioning at the current level. He then builds increments above that particular level. Anything that's new and anything with growth above what we're doing in the current year is put into that incremental list and looked at by the Chief of Staff's committee, to determine whether we want to pick that up in POM 85. Again, it is reviewed by all of the POM committees.

When we have all of these programs and all initiatives have been submitted, this is
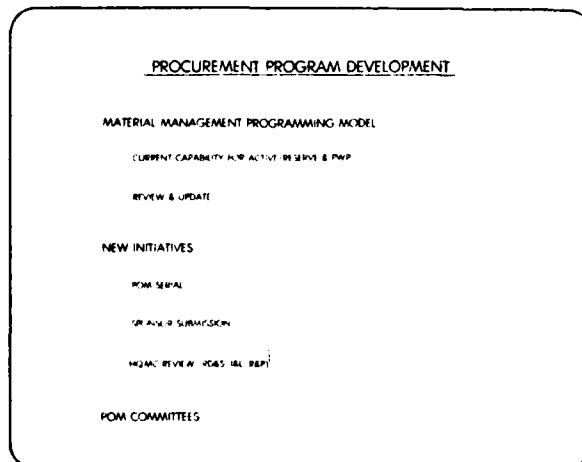
the way we begin to build the core program. **[SLIDE 20]** Manpower structure has been costed. If it is satisfactory and executable, we load it into the core. If there's a problem on the cost of it or some doubt whether a portion of it—any new portion of it—might not be as important as some other program, we put it up on the margin for later consideration. The basic reserve program is loaded into the core. Guidance items of ammunition, principal end items, any directed programs, a basic military construction program, family housing program, Marine Corps stock fund—all these are put into the core level. An O&M program that will keep us at the current level is put into the core program.

Everything else in procurement—milcon, family housing, and all new initiatives—go into what we call a Program Decision Package Component List or PDPCL. New initiatives, sustainability packages on ammunition, or principal end items above the core are put up in the PDPCL. We build on family housing in the same manner, and, of course, O&M packages are here. In POM 84 we had 150 programs above the core.

Then we all sit down and pray that, when we do the blue-green split, the line will come in significantly above the core level to allow funding of the programs in the PDPCL. Last year, unlike some years, it came out right at core level. Back in POM 81, the line came out below core level, which made for an interesting procedure. If it's just slightly above, that's the way I would prefer it because it's simple for me to take care of a few extra bucks, stick them in there, say goodnight, and go on leave. But we hope it will be a little bit higher this year.

Now, how do we do prioritization? I just want to touch on this very briefly. I won't go into the actual techniques because Dr. Peterson follows me. He will be discussing that. We use mission areas, and I'm not going to go into a long thing on mission-area analysis. These mission areas have nothing to do with the Department of Defense mission areas. They're not the same. Ours can change every year. We publish a POM serial. We go to the Deputy Chiefs of Staff and we say, "How would you like to prioritize your program? What are your needs?" And they create their own mission areas—whatever number they want. One year we had 26, then we went to about 38, and I haven't counted what it is this year. It was 38 last year; that included a lot of O&M.

As an example, C4 has three mission areas: tactical C2, ADP data communications, and tactical communications. **[SLIDE 21]** C4 lists and defines the mission areas. Then C4
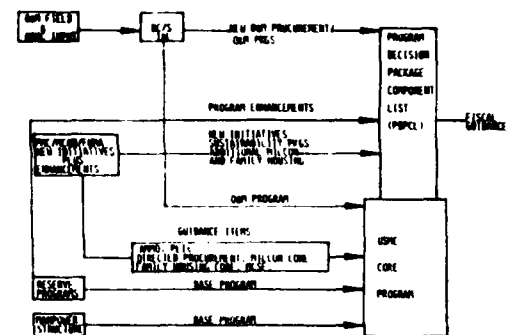
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Slide 20

Slide 21
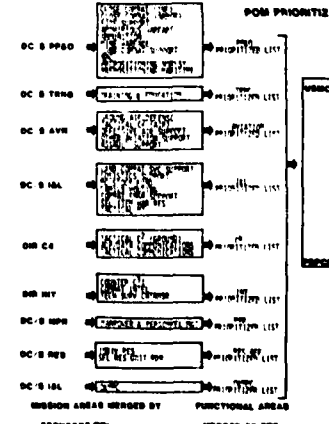
takes the programs that he wants to put into the Marine Corps POM, and puts them into those various mission areas. He might have, for instance, 20 programs in this area, maybe 10 here, and--let's say--10 in the other one. He puts his programs underneath those areas. All of the sponsors do that.

As soon as they have all of their programs within those areas, we use--as I said--DDI, who, with a representative from my shop, meets with the individual sponsors. We meet with the action officers from the sponsors from each individual mission area. We meet with them separately. Those action officers prioritize those programs within each mission area. They tell us which ones they feel are most important, down to which is the least important as compared with those particular programs within that mission area.

Next, the programs are weighted so that we can get a better feel for their importance, and we load them into our computer. We do the same thing for the second mission area, and the third mission area. We do it for all of the mission areas.

Once we have them all prioritized and weighted, we come back and meet with the sponsor's evaluation group, a program evaluation group made up of colonels from that particular sponsor's shop. And we do the same procedure with that group, only they have to merge all of the mission areas belonging to the sponsor so that we come out with a single, prioritized list from each sponsor. Now we have a single prioritized list from each sponsor, again using the exact same methodology.

We then form what we call a program evaluation group made up of officers from headquarters who are honest brokers. They cannot be from a sponsor. And we all know we can go out and get a couple of honest brokers if we can keep their names off any piece of paper. We don't show their boss what they did, and complete anonymity is promised.

This group is briefed on selected programs. We select several programs from each sponsor's list. There may be 300 programs, and we couldn't do them all. We select a high-, medium-, or low-valued program from each sponsor, and we brief the program evaluation group on those particular programs so that they become thoroughly knowledgeable. This group of officers is selected from the Headquarters, Marine Corps staff. We pick an infantry officer, armor or artillery officer, communicator, someone with logistics background, manpower rep. They meet away from Headquarters. We take them out to DDI, where

they have a room in which we lock them for an entire day, and they prioritize those selected programs--about 24 programs in all. They merge them into a single list. And again they weight them.

That list is loaded into our computer, where every program has been assigned a weight. We hit the little button, and out comes a single list that provides a prioritized list or a prioritized PDPCL. That is then presented to the POM development committees beginning with the POM working group. We show the list and which program came out number one, which came out last--and that's where the heartburn starts.

At that point, we determine whether there are any inconsistencies, or a program not correctly understood. That list, because we start at the action officer level in putting it together, holds pretty consistent. I'd say, in the three years that I've worked this procedure, about 80 percent--85 percent--of that list will stay. It does not move. In fact, the programs that are down at the bottom of it, or well below wherever the Fiscal Guidance comes in, are actually gone. They don't even get into the discussion. So, it's a pretty accurate method with which to start.

However, there are changes. There are changes at the POM working group, and we come up with a program that includes these different items. That program is sent forward to the POM coordinating group, where there may be some more input. (Sometimes, as you get closer to the fire, there is possibly more wisdom. I don't know, I will assume there is.) And, as it goes forward, there may be some changes. Of course, it's also a time factor; as it goes forward there may be something that will come out. The Fiscal Director is conducting his review at this point. We may find that a program that was in there may have to be bounced back out because it is not executable. And then, eventually, by the time we get to the Chief of Staff's committee, the changes to the program are relatively few. We'll have identified any heartburn issues that any sponsor may have with any of the programs in this procedure. Since we will know about them before they get there, we'll be able to discuss them intelligently in front of the Chief of Staff's committee.

This procedure can be used not only for the procurement issues, but in the O&M area too. We do use it in the manpower portion of our program.

That's basically how we develop our program and how the POM is put together as we move from the September time frame into the

May time frame. Tomorrow the Navy—Captain Walsh and Admiral Metcalf—will be talking about the Navy POM. I want to point out that there are three military departments. And there are four services. I told Captain Walsh that he might not have to do his brief tomorrow since I recognize the fact that thus far there have been only three services; so, I assume it's all over today with our presentation. The points to keep in mind in the writing of the guidance and in directions that follow is that the terms "department" and "service" are sometimes mixed up. That really impacts upon us because we can't figure out whether you're talking directly to us or you're talking to the Department of the Navy. So, there is occasionally a disconnect in addressing problems when the term "department" is used vice "service" and vice versa.

Major General Morgan: We've talked briefly about the process we use. In view of the order of magnitude of the total TOA, obviously, this process works for us—and, we think, successfully. In no manner should it be perceived that we have more or less knockdowns than any other services in trying to come to grips with the issues that are developed. The POM Coordinating Group, which I head, is not too dissimilar from the Program Development Review Committee on the Navy side of the house. They follow the same level of procedure to knock it down and come to grips with balance in the program and the hard issues before we have to put it up there to the Chief of Staff's committee, which is the decision-making process within the Marine Corps.

I would like to talk just briefly to some of the things that we have run into in the last two years. When I arrived back in Headquarters, to take over this particular function a year ago last summer, it was Christmas time compared to when I left in '77. The '81/'82 supplemental and amendment had occurred, and '83 program was down, and I had left here in a period in '77 when we were trading endstrength to get one new start. So, the order of magnitude of the process and the problems that we are dealing with are considerably changed.

We did a few things in the '83 POM and budget development that we thought were essential to the Marine Corps. We focused very clearly on readiness and sustainability. We believe that that's probably the most important part of our mission: to carry out those tasks that we have. And, particularly in the sustainability area, we put a large measure of PMC resources into ammunition. To correct the deficiency that was of long standing, we did a similar thing in '84.

Now, in doing that in '84, we wound up with a relatively significant problem that Bob touched on. In order to meet the Defense Guidance of '84 and to meet the sustainability levels and readiness levels that were demanded in that guidance, we wound up with about $40 million to use for new starts. We had cared for our manpower programs, the readiness and sustainability factors that were demanded in the Defense Guidance, and those principal end items that we had to procure and to continue those programs that were in the previous budget years. So, we had no new starts in '84. In choosing the strategy for POM 84—and, we prefer to say, in answering the demands of Defense Guidance on sustainability and readiness—we concentrated on readiness and sustainability, and we attained the goals that were demanded—most specifically in the sustainability of ammunition, which was the largest outlay that we had to make to meet those sustainability levels. Well, in the '83 budget on the Hill, we were marked at $170 million in our ammunition accounts. Now, that may not seem like large numbers to the other services, but to us that's $170 million out of about $630 million that was in that particular account. Subsequent to that, we went through the '84 program deliberations and to the PDM and, because the size of our strategic force is relatively limited in the Marine Corps, the tax we paid for the strategic plus-ups bit into our ammunition accounts, also. So, our effort to meet the sustainability guidance of the Defense Department and the readiness guidance has now got us down to some $300 million below where we started in '83, before we get to Defense Guidance for '85 and start that program.

We can't do that again, and I say that with John Tilson here, so that he understands that we need some other type of focus that accounts for the kinds of things that happen on the Hill that give you a hard correction to your program, and you do not have the flexibility nor the latitude to deal with that and get back in and meet the guidance unless the guidance changes in the future.

Now I want to touch on one other area. Ofttimes, we in the Marine Corps talk of the fact that we have a relatively small portion of the total TOA of the Defense Department, and that is true. But it would be only fair to say that we satellite on many of the Army programs in ground combat. We satellite from a lot of their R&D efforts. We satellite in terms of the contractual relationships therein. We satellite very heavily on the Navy R&D effort, when it comes to aircraft. So, we don't have a particularly straight picture in all of that, and we benefit greatly from a lot of the efforts that are ongoing in the Army

and in the Navy in those R&D efforts and in the acquisition profiles. I say that for a reason.

Some of the problems that we have programmatically when we get down to budget submission are driven by cost factors that we depended on many times from the Army. And a lot of that derives in the ammunition accounts, and the truck accounts, and when those factors change, particularly in the end game, it disrupts our program as that flows in to budget review in the Department of the Defense. Unless there's some magic that occurs—that hasn't magically occurred historically—we can lose considerable TOA in a relative sense to the Marine Corps. We need to do a better job in the Marine Corps, working with the Army on the cost factors, to insure that we do not lose that TOA. With that, let me close and attempt to answer whatever questions you have.

DISCUSSION

Question: I'd like you to comment on the formal use of prioritization in the Marine Corps PPBS. Why do you do that and how does it help?

General Morgan: I believe Colonel Town might be able to answer this a little bit better because I was elsewhere during the development of the process. I would expect that the very limited resources we had in developing the '84 budget were similar to what you had when we started the process. When you're talking about new starts and trying to make decisions across the total TOA with a very limited TOA, we have to make decisions between manpower cuts and new starts. We didn't have a process to do that. Manpower is fundamental with the Army and the Marine Corps. It is, without question, our most important product; that's why you see it going into the core first. When we have to start trading manpower for sustainability or readiness and new starts, we need a little better process than just calling it off the wall to do so. That's the best estimate I can give.

Colonel Town: I'd just like to say one thing. In POM '81 we received our Fiscal Guidance late and then attempted to comply with the Consolidated Guidance. It was a big shock for us when we came out about $500 million short, trying to comply with Consolidated Guidance. That were no new starts. Our POM went in after an agonizing decrement process which we were not set up to do. I don't know if you remember our "10,000-man cut." We were going to be able to have a maximum of thirty days' sustainability in all accounts and a very bare C2

readiness in our operation and maintenance account. We found out that what we had was a great POM process for making small changes and trades and a wonderful process for adding things. What we really didn't have was a process of biting the bullet and making significant decrements to the current program. So, for POM '81, we said, "Let's have some mission areas and make our sponsors prioritize. Prioritize not only what you want to add, but what you've already got, and make tradeoffs."

That was a critical step, and that's why the mission areas were made so flexible. Sometimes we had ten programs in a mission area, and the next year those programs were bought out, and a sponsor could say, "Gee, I can do a better job by combining a couple of mission areas."

We borrowed from the Army the idea of having a "core" program. That core is the smallest we can make it in order to have flexibility to evaluate other programs.

General Morgan: The second part of that (and I'm sorry but I missed the Army pitch this morning) but not included in our briefing, is that—and Bob touched on the models we use—underlying those models are Marine Corps scenarios that those models play against in terms of developing ammunition expenditure rates relative to our weaponry against a threat force, etc.

Comment from the floor: I'd also like to address that. We started out very much in parallel in our processing. It was persisted in by the next speaker. If we could put off that question about merging the priority list until we hear that pitch, we can answer then.

Question: The first part of the process seems to be the general officers' symposium. Can you tell me what really comes out of that, and do all the general officers play, and is that really the planning process, or how does that tie in?

General Morgan: Certainly. Let me talk to that because it's relatively important but should not be taken out of context. The question is a good one. As Bob said, we have an annual general officers' symposium. It takes place at Headquarters, Marine Corps, at the end of August. We did not design it to relate to PPBS, but it does happen to occur at that time. It affords me the opportunity to cover the previous year's POM development and the PDM process. It also permits me to bring all of the general officers up to speed on the budget and the actions on the Hill on that year's budget. We're able to walk the general officers from all over the Marine Corps very

carefully through program development, and if the PDM is down, the decisions that have been made.

Generally, we have in attendance the two Fleet Marine Force commanders plus the division and wing commanders and service support group commanders of all of our bases and stations around the Marine Corps. It's a one-week conference. The purpose of the conference is for the Commandant to get together annually with his general officers to talk about the total Marine Corps.

We generally structure that conference to bring them up to speed on issues that we have with programming. We have half a day of briefings and half a day of discussion groups on issues that we think are of importance to the Marine Corps, including programming issues. Few if any decisions come out of that conference other than those that the Commandant feels compelled to make so that he can give guidance to the force. Some of them have programmatic impact. It should not be considered in any sense other than that. So, there are programmatic decisions that fall out of that, but it is. not a lead for the program commencement.

Question: Could you address how you play in the Navy's program building process?

General Morgan: I can, but it may be fairer on that one to address it mutually with Admiral Metcalf tomorrow. I could give you a picture from our side, and I'd try do it in as balanced a manner I can. But I'd rather field that jointly with him, and certainly I'll give you my views at that time--unconstrained.

Question: What role do the Marine Corps field commands play in developing the core programs?

General Morgan: The field commands do not participate in putting their programs in the core. The field commands participate only from an aspect of the operations and maintenance call. We derive from the field commands--there are two FMF commanders--their deficiencies and their requirements from their semiannual situation reports. So, the development of the FMF requirements is done at Headquarters, Marine Corps. Unlike the Army and the Air Force in terms of the four-star commanders who carry leverage to the table as programmers, our FMF commanders do not carry that leverage nor determine what is going to be in the core--only in the O&M accounts.

Question: I understand from the initial briefing that the Department of the Navy

handles your aviation portion. Now, that's not in your core, but how do you transmit what your aviation requirements are to the Department of the Navy, and how does that compete with the Navy's program--especially with something like the AV-8, where you are the single user of a particular type of aircraft?

General Morgan: You need to understand the air combat element of the Marine Corps as Bob touched on it. We try to divide the Marine Corps into ground combat element, aviation combat element, and combat service support. In the aviation combat element, there are green and blue programs; that is to say, our antiair defense systems or Hawk systems are green-dollar-funded. Now, let's leave that aside. The same thing applies to our air control systems, which are green-dollar-funded. Our Stinger missile systems, green-dollar-funded. Aircraft and aviation-peculiar ordnance, POL, etc., are blue-dollar-funded.

Question: How do you develop a requirement, first of all, and then how does the process work?

General Morgan: The requirement is developed at Headquarters, Marine Corps, for initiatives that we have for aviation programs or aviation ordnance. A call is made by the program sponsor, which is Op-05 on the OpNav staff. We make our initiatives to Op-05, and they are blended into the total development of the APN plan by Op-05 and coordinated with Op-90.

Now, how do they compete? They compete in balance with all the other programs, and we tough it out between ourselves and the OpNav staff in the program end game as to wh t is funded or not funded. It's the same kind of tough fight that you have between the respective TAC, MAC, and SAC commanders in terms of who's getting their share of the pie.

Over time, I think, if you looked at the Marine Corps' share of the APN plan, it would rise and fall over the course of 20 years in a relative sense with age of aircraft and procurement profiles--as with the FA-18, where we're going down the stream together. Or compare it with the F-4. We retained the F-4 for a longer period of time. Because we backed away from acquisition of the F-14 at the end of the game and stayed with the F-4, that portion of the APN plan went down.

We are in a position where our portion of that plan is kind of on an upswing. We've got both AV-8B and FA-18 coming into the force. If you looked at it over an extended period of time, you'd see our relative percentage of

that portion coming out somewhere about 24 percent of the APN plan over time—over an extended period of time—if you look at it that way. It's a tough fight. I won't underestimate it; it's a dogfight annually.

Question: The only other comment is, "Do you have a similar process to develop that initial requirement that we saw here for the other things that work only with the green dollars, or is the deviation included in that process?"

General Morgan: Aviation is in our aviation green-dollar programs, included in the process you saw. Blue-dollar programs are not in that process, but are in the process in OpNav in development of the APN plan. Any other questions? Thank you very much.

PRIORITIZATION OF PROGRAMS

by

Dr. Cameron R. Peterson
Decisions and Designs, Incorporated

I'm going to restrict my discussion today to the problem of generating an order, a buy, both within a sponsor group and between sponsor groups.

How do you rank-order a set of programs in the most cost-effective manner? We use computer models, that are different from the models that we've been discussing the last day or two. We have been discussing operations research models and simulation models, which are models of the environment. They are engineering models of a complicated environment that are designed to simulate that process in such a way that a decision-maker can have a better grasp, a better understanding of that environment. By contrast, I will describe psychological models based upon decision analysis, models designed to fit in and work with a conference.

For the psychological model, the knowledge is in the heads of people rather than in the computer. The computer is used to provide a framework for dialogue and debate among a group of participants. Therefore, the participants must be knowledgeable about the items to be prioritized and, ideally, they should be motivationally involved. Advocates argue and pound the table and fight with each other, and that's how this process works best.

First, some background. Over the last 10 years, we have gradually evolved a process that we call a "decision conference." It's a highly structured process designed to use computer modeling to aid people who have to make decisions. Typically, a general manager will bring 10 or 15 of his managers into the conference room, and they sit around the table to develop priorities. If he's going to build a factory, the priorities are about amount of robotics versus amount of computer-aided design versus size of building, etc. If it's a POM working group, there will be priorities among tanks, helicopters, radios, trucks, and so on. But the assumption of this modeling process is that the people have the knowledge, and the computer model is used to develop a framework so that knowledge can be exposed and the participants can communicate with each other in order to achieve an effective consensus on the priorities.

We use a procedure called "triangulation," which means that we ask the same question different ways, with the aim of finding inconsistencies. We then focus discussion on these inconsistent answers so that the participants can understand why the differences are what they are, and thereby clear up knowledge gaps on the way to effective prioritization.

Here is an example of triangulation. First, the participants intuitively come up with a decision, which might be a rank order of the programs under consideration. Second, we ask questions about costs and benefits, which are typed into a computerized cost-benefit model. The computer then generates an order of programs which is compared with the intuitive rank order. Where the two rankings differ, there has been a mistake, either in the intuitive ordering process or in the costs and benefits that led to the computer ordering. The search for the reasons for this inconsistency between the two procedures leads the participants to a better understanding and an ability to communicate the rationale behind their priorities. They then reconcile the inconsistency by changing either the intuitive rank order or the order that came from the cost-benefit model.

Three analysts typically assist the participants in a decision conference. One asks questions about the items to be prioritized: What are the costs, what are the benefits, what are the reasons for having one item higher than another one on the list. While this dialogue is taking place, a second analyst enters the costs and benefits into a computer model. Typically, the participants are on the edge of their chairs, waiting to compare the computer answers with their own answers. A third analyst captures the rationale. Sometimes a group can argue for a half-hour about why the priority should be higher for one package than for another one; then, 3 weeks later, they forget which one had the highest priority. They forget the arguments. So, while the group argues, thinks hard, and debates, this third analyst captures the reasons for why one program is rated higher than another program. These reasons may be intuitive, qualitative judgments made by a group, or they may be quantitative arguments derived from simulation models.

These psychological models require a scaling of the benefits of the programs. There are two important reasons for going beyond ordinal or ranking judgments and using scales. The first is to permit assessments of cost to be combined with assessments of benefit for a cost-benefit analysis. The second purpose of the benefit scale is to facilitate prioritization across sponsors.

This benefit scale has the property that if program A is worth two points and program B

is worth three points and program C is worth five points, then it must be true that the participants are indifferent between the benefit from program C and the combined benefit from the other two programs. People make serious mistakes when they attempt to generate such a scale. Psychological research demonstrates why it is difficult. A psychologist, George Miller, once wrote a paper called the "Magic Number 7 Plus or Minus 2" where he demonstrated over a wide variety of tasks, like judging weight, or brightness, or musical pitch, or loudness, that there is not a good internal scale against which a person can compare the thing being evaluated.

The following sort of judgment facilitates the generation of a scale. Consider this imaginary experiment. I have five rocks sitting on a table, and I ask you to judge the number of pounds of each rock. You lift one rock and say that weighs 6 pounds, another and say it weighs 5 pounds, a third and say that weighs 3 pounds, and so on. Next, you compare rocks 6, 5, and 3 with each other. You lift rocks 5 and 3 in one hand and rock 6 in the other. Assume that you judge that there is no difference between the two hands, that the two rocks weigh the same as the third. Those two judgments are inconsistent; so, you must reconcile them. You must either change your estimates of pounds or change your judgment that the heavier rock weighs the same as the sum of the two lighter rocks. There is no doubt about which you would do; you would change your estimates of pounds so that they agree with your indifference judgment.

People are much better as null instruments for making indifference judgments than they are at generating scale numbers. Therefore, it is useful to use indifference judgments for creating a benefit scale. The question may take the following form: is the overall mission of the organization enhanced more by Program A or by both Programs B and C? Such judgments are then used to modify the numerical weighting of relative benefit.

The next step is to use the benefit scale in a cost-benefit analysis. Even though these measures of benefit are highly subjective, it has been our experience that participants are more confident about the veridicality of the benefit scale than about the estimates of average annual life cycle cost used in the cost-benefit analysis. The conclusion is almost always that there is more uncertainty about the costs than there is about the benefits.

A cost-benefit order of buy is generated by selecting programs according to the ratio of cost to benefit. When people intuitively select an order of buy, however, they tend to rank order primarily by benefit—they essentially ignore cost. The program with the highest benefit is selected first, then the program with the next highest benefit, and so on.

Because of this systematic bias, it is enlightening to contrast an intuitive order of buy (typically according to benefit) with an order of buy generated by cost-benefit ratios. Consider the following example. The benefit order is A-B-C-D-E and the cost-benefit order is B-D-E-C-A. Assume that the cost of A is equal to the combined cost C-D-E. Participants invariably prefer the benefit order. But now further assume that A, even though it has more benefit than any other single program, has less benefit than the combination of C-D-E. Substantial internal conflict is created when participants prefer the order A-B-C-D-E but prefer the package B-C-D-E to the package A-B, which costs the same amount. The benefit scale is useful in identifying this kind of internal conflict, and it forces participants to consider cost as well as benefit and, usually, leads to a substantial modification in their intuitively prioritized order of buy.

Benefit scales are also useful for prioritizing across sponsors, which is more difficult because the programs tend to serve more diverse functions. The procedure for scaling across sponsors is as follows. First, participants within each sponsor use the procedure described above to scale their programs in terms of benefit. Then a group of "honest brokers" is selected for going across sponsors. Their task is to find a program or a set of programs for Sponsor A that yields the same level of benefit as another program for Sponsor B, and as yet another program for Sponsor C, and so on. The objective is to develop a benefit scale for a subset of programs from each sponsor. Then the scales within and between sponsors can be combined to yield a common scale for all programs. This procedure requires additional effort within sponsors in exchange for a more effective prioritization across sponsors.

This procedure for prioritizing programs assumes that the programs are independent, i.e., that neither the cost nor the benefit of one program changes as a function of whether any other program is selected. Linear models, which assume no interaction, are simple and transparent as frameworks for discussion. Unfortunately, the convenient assumption of universal independence is incorrect. Many programs interact with other programs.

A large body of research, however, has shown that only a slight amount of inaccuracy results from ignoring mild-to-moderate interactions. A linear model typically accounts for over 90 percent of the variance of an interacting environment. Consequently, we have adopted the strategy of selectively modeling interactions in these prioritization models used in conferences. The procedure is to identify the relatively small percentage of interactions that are very important, model those interactions, and then treat the relatively high percentage of remaining programs as independent.

Thus, this approach of applying computer models to conferences is designed to yield results that are precisely wrong but approximately right. It applies the Pareto principle of achieving 80 percent of the value with 30 percent of the resources to the process of analysis, as well as to the cost-benefit of the programs that are the subject of analysis.

PANEL DISCUSSION:
PPBS – THE SECOND GENERATION

Moderator: Professor Sherman Blandin
United States Naval Postgraduate School

Mr. Russell Murray 2nd
Systems Research and Applications Corporation

Mr. Philip Odeen
Coopers and Lybrand, Inc.

Dr. Ivan Selin
American Management Systems, Inc.

Mr. Leonard Sullivan, Jr.
Systems Planning Corporation

Professor Blandin: Ladies and gentlemen, our panel last evening addressed the original development and implementation of the Planning, Programming, and Budgeting System through 1969--the McNamara-Hitch-Enthoven years. The panel this evening is intended to address the evolution of the system from 1969 to the present, or at least the near-present.

During these years, I think, PPBS has been--and, in my opinion, continues to be--a very adaptive system. It has survived the introduction of new initiatives, such as MO, participative management, and ZBB. With that very brief remark, it's certainly my privilege to introduce a most distinguished set of speakers for this penultimate panel.

The panel tomorrow will address the future of PPBS. Based on the last discussion this afternoon, I've been searching for a cross-scaling method for determining the order in which the speakers should speak. I came up with one that is cardinal and chronological.

The first speaker will be Ivan Selin, who was in the Office of the Assistant Secretary of Defense (Systems Analysis) from 1965 to 1970. He was the immediate successor to Alain Enthoven and served as Acting Assistant Secretary of Defense (Systems Analysis) in the first year of the Nixon Administration. He was present during the initial implementation, I think, of what was called participatory management and was also one the principal authors of NSSM-3. I think Ivan will talk a little about that.

Phil Odeen will be the next speaker. Phil spent 10 years in the Office of the Assistant Secretary of Defense (System Analysis). He served as Principal Deputy Assistant Secretary, and was responsible for, among other things, Southeast Asia policy and some all-volunteer force issues. He was also Director of Program Analysis for Dr. Kissinger in the National Security Council and also was involved in NSSM-3.

The third speaker will be Leonard Sullivan. Len served initially in the Office of the Director of Defense Research and Engineering from 1964 to 1973. He then served as Assistant Secretary of Defense for Systems Analysis (renamed Program Analysis and Evaluation) from 1973 to 1976.

A repeat of last night and in the batting cleanup for this session will be Russell Murray. As you know from last night's panel, Mr. Murray was Principal Deputy Assistant Secretary of Defense (Systems Analysis) in the early 1960s and served most recently as Director of PA&E during the Carter administration. Russ was the immediate predecessor of Dr. Chu.

Each speaker will speak for approximately 20 minutes. Then we'll have a question-and-answer period.

Dr. Selin: I can explain why MBO failed. It's because MBO is fine for the people being managed, but it's terrible for the managers. The principle of management by objectives, of course, is that you hear only about things that deviate from plan. Things deviate from plan only when they're worse than the plan, and nothing's ever better than the plan. And so, if you manage by objectives, you get only bad news. Nobody can stand that for very long. There's no future in a system like that.

I do hope you will interrupt with questions or outraged cries or whatever you might wish to say along the way. Russell pointed out to me that if the first three fellows strike out, the clean-up batter doesn't have to get up, and he wouldn't mind that very much.

I'm going to talk about three things. I'm going to talk briefly about what I think is the signal achievement of systems analysis in about 1968 and 1969, when I was running the strategic forces. I'll then show how that led into the PPBS and the systems analysis function--not the Systems Analysis office, but the function in what could be called a participatory dictatorship (or whatever that system was that we had there in the beginning of the Laird administration).

Mr. Laird was a very strong Secretary and could not be fooled. Mr. McNamara came in, raised the budget of the armed forces 20 percent, and incurred their enmity immediately. Mr. Laird came in, chuckled a little bit, cut it 10 percent, and they thought he was their man. So, he was a very strong Secretary. The third thing I'll do is talk about NSSM-3 for a little bit.

I think the outstanding achievement--it was done to the point that we could do what we

had to do afterward—was to extend the PPBS system, to get into the parts of the Defense budget that could not be directly tied in with weapon systems or forces. People have different estimates. But something like 70 percent of the Defense budget has to be related to. It's not directly tied to the weapon systems or the forces that operate them or, in the Army's case, the forces or the weapons that support the forces.

For the longest time, probably the best analyses we were doing in Systems Analysis were weapons system analyses. But, in 1965, when Alain became an Assistant Secretary, he inherited the manpower requirements and the logistical requirements. And, for the first time, he had a responsibility for trying to come up with some cost-benefit analysis in military terms, not for the "combat tail" but for the support forces that are quite distant from the fighting forces. The problem was not coming up with an engagement analysis or operations research analysis but true accounting and economic analysis that shows how we relate to force capabilities the depot maintenance or the training programs or the number of pilots that we need, the number of trainees, and other such questions. And the problem was not a shortage of intellectual energy, but a shortage of data. It was very, very hard to go through the Defense budget and Defense expenditures.

(That's another point, by the way: Nobody really understood that you had to look at actual expenditures to see how money was spent. All the analysis was focused on the budget.)

We tried to go into the accounting systems and extract data on how money was actually spent, regardless of how money was planned to be spent in the budget. We wanted to get some aggregate data that would be useful for the analysis of logistical programs, training programs, maintenance programs, readiness programs—the things that are absolutely essential if the military is to be able to fight. It's not very romantic; it's never in the front end of the Secretary's posture statement, and it's where most of the money is. In the absence of such analysis, things can get tough: The budget is cut 5 percent, flying hours are cut 20 percent, training goes down, reenlistment goes down, and the Army has all the weapons—but it can't do anything with them.

Without going into how this was done, I would think this was the most important victory for PPBS. In my opinion, it's really what PPBS is all about—taking support programs and putting them into programs and budgets in such

a way that one can relate these, even if indirectly, to military capability.

The important point on this is that during the first year of the Laird regime in the Defense Department, System Analysis was put firmly in its place. We were told that we could not tell the Navy how many modifications it could make to the A-7. All we could tell them was what their budget would be and how they could spend it in terms of strategic forces, tactical forces, etc. The same was true for the Army and the Air Force.

Smarting from this immediate and enormous defeat, it turned out that my function—or the function of my office—was to do a top-down split of the Defense budget in mission and service terms, to give what might be considered "bogies." We were not responsible for developing targets for the Army budget, the Air Force budget, or the Navy budget, but for developing a total amount that the Defense Department was to spend over the next five years for a function like tactical aviation. We were asked to develop the split between Marine, blue-suit Navy, and Air Force aviation and then have the services try to develop programs. That was the idea of the POM, to have the services try to develop programs within the splits.

We could talk as much as you would like about how these figures were reached. The attempt was to create a set of forces that were pretty good and then cost the forces. We then looked at trade-offs between, say, tactical aviation and ground forces, or general purpose Navy and amphibious forces, to make sure that we didn't have terribly unbalanced forces. The forces now became the scaffolding, which was published as backup. But we used the dollar figures as targets for the programs. We then gave the dollar targets to the services and said, "We'll be glad to show you how we did this, if it's any help to you in building your forces. But we really would like to know what you would do if you had a 5-year program of $85 billion for tactical aviation. We'll give you the examples that we used. We believe that it is possible to keep a certain number of aircraft up in the air with a certain set of assumptions, but we'd like them to be your forces, not ours."

For the first time, and this may sound a little like a boast (but that's because it is a boast), the Secretary of Defense was in a position to be able to put out some military objectives and some dollar figures, with a few other constraints like endstrengths, and say to the services, "I'm quite confident that this amount of money is capable of purchasing this much force, but I'd like to see what

forces you would develop within these constraints. I'll then compare those with my forces. If yours aren't much worse than mine, we'll take yours." And the services began designing forces within the constraints set up by the Secretary of Defense.

In order to do this, it was absolutely essential that this tremendous support "tail" be allocable to missions and services. If we were talking about increasing ground force readiness and reducing tactical aviation in central Europe—which is one of the things we were talking about at the time—we had to be able to go through the calculation and say, "What would that do to the support budget?" Otherwise, the entire argument would be based on plus-or-minus-10-percent differences on 30 percent of the budget. And the entire mass of the iceberg would have gone undetected and unaffected.

So, to me, the great victory of PPBS was to get a better handle on the support forces. The reason it was important was that, without it, the Secretary of Defense would not have been able to make the transition from OSD-developed specialized forces, programs, and a whole lot of really irrelevant variables to specifying guidance for program budgets, end-strengths, and military capability for the services to use in designing the forces.

Having done that at least well enough so we had all the dollars accounted for—I'm not sure we had them all in the right place, but at least the programs added up to the entire budget—we could relate budgets back to the actual outlays. That was a very, very big improvement. We did not work just with published budgets but with actual, previous years' outlays so that we had some confidence that our description of the base was accurate.

The next step was to say, "Well, we have the JSOP, where the military are asked to say how much it costs to do everything simultaneously and, of course, with no risk." Of course, that would cost a great deal. Then, when it came time to do the budget, we would discover that we didn't have anything like that amount of money. The whole idea of NSSM-3, National Security Study Memorandum 3, was to try to relate military strategies to forces and budgets simultaneously so that if we talked about a more aggressive or more modest strategy, we could talk about the forces and the budgets that went with the strategy.

There's one basic rule that those of you in the studies business know, and that is: Never ask for a study unless you know what the answer will be. The only way we were able to

do a reasonably good job on NSSM-3 in the fall of 1969 is that we, within Systems Analysis, had done the same study limited to defense forces in the summer of 1969.

Alain Enthoven had been there a long time, and he had a number of outside interests. Russ Murray was very interested in what we were doing; so, I sat down with him and said, "Look, it will be a little embarrassing, after Wayne Smith and Alain Enthoven complete their book called 'How Much is Enough?' if no one has ever done an analysis of how much is enough.

All of the analyses had been based on matching. For instance, if you buy more tactical air forces, what else do you have to buy to go with it? If you buy more ground forces, what kind of airlift do you need to support the ground forces? And, to the best of my knowledge, nobody had ever sat down and asked, "How much defense do you get for this much money or for that much money?" And we thought that, having received credit for doing this type of analysis for a year, it would be a good idea if we took at least a wild shot at this question.

So, in the summer of 1968, within Systems Analysis, we took a first cut at several alternative strategies, forces, and budgets. Then we dispatched Larry Lynn to the White House and drafted the NSSM for him to send over to us to tell us to do the study we had already done. That worked very well. Larry sent over the memorandum, and we extended the study in two ways.

There was very wide participation by other parts of the Department of Defense in looking at alternative forces. And, all sarcasm aside, although the basic numbers were done in the sense that we had some idea of efficient forces and a reasonable mix at given budget level, there was a great deal of discussion about what the military capabilities of the forces would be, what the risk was, what a reasonable mix between land-based and sea-based air might be at a given level, etc. So, the first step we took to expand our study into NSSM-3 was to engage the efforts of all the organizations within the Defense establishment.

The first part of our study was quite successful, I thought. The second part was really quite unsuccessful. This part was supposed to address the question: "With the savings from defense, how much could be spent on nondefense programs; or, conversely, with larger defense programs, how much would the civil economy suffer?"

To do that, we had to do something that had really never been done, which is to try to look at a balanced urban development program or a balanced transportation program.

The second part was supposed to develop trade-offs between a balanced domestic program and a balanced defense program. That was quite unsuccessful. Nobody on the domestic side had ever thought about the relationships between housing programs and welfare programs or how to trade off between supersonic transports and urban mass transportation.

So, we ended up with the NSSM-3. I don't think we did a very good job on the strategic part. With general purpose forces, we had the benefit of Russ Murray and Phil Odeen, who had worked in this area for a long time. It was brand-new to me; so, I was able to look at that with a new eye. I think we did a pretty good job on the general purpose forces, which is fortunate because that's where most of the money goes, anyway.

We looked at a number of different strategies: a simultaneous defense of both Europe and Asia, a defense of one or the other, but not both simultaneously, and a defense of Europe with a holding action in Asia. We also considered different levels of risks, different levels of costs, and what this meant for the defense program. Furthermore, since the military people were involved in evaluating the risk of the forces at the same time the budgets were set--instead of the earlier process in which budgets were not looked at--a five-year program was created. The five-year program held up pretty well, until the President's attention was diverted because of Watergate. This continued for about three years.

The numbers that came out of NSSM-3 were, in fact, the budgets, the 5-year budgets that were laid out for the services, by mission and by service, in the Presidential Memorandum and the Defense Secretary's response to it. And, to finally complete this huge circle, all of this was made possible by the efforts within PPBS to get the support forces and the support budgets into a program budget.

I'll stop here and take questions.

Question: What did the departments have to say about this?

Dr. Selin: First of all, there was a certain amount of sleight of hand that went on. Mr. Packard sent out a memorandum limiting the Acting Assistant Secretary for Systems Analysis--by the way, I have served the longest as an acting presidential appointee except for

Lewis Strauss, and that's some kind of record to merely deciding what the budgets and the programs of the military departments would be. Everyone thought, "Gee, that's terrific. We can decide whether to put a tail hook on the A-7 or not, all by ourselves. He can just tell us whether we have any money to buy A-7s or not."

So, the services were really quite pleased with having to be more serious. They were willing to accept the authority of the Secretary of Defense to lay out broad budgets and programs; they were just tired of being told how to spend the money within these programs. And, at least the initial reaction, I felt, was quite favorable. The paper work was reduced. Instead of having a very detailed set of plans coming out in Draft Presidential Memoranda, they were given certain bogies and were allowed to do some planning. (By the way, Presidential Memoranda never appeared in final form. They were always drafts. They went through 11 or 12 drafts, and then we started on next year's draft.)

I suspect that it was long after I was gone that they realized that in many ways they were more constrained rather than less. But the initial reaction was very favorable. You can ask my successors what happened after that. It's good to have a job only in one year.

Question: How many airplanes were they buying?

Dr. Selin: We were buying a lot of airplanes. But the Vietnam war was building up; so, we were going to buy a lot of airplanes, regardless of what the program structure was going to be. We probably bought a few more helicopters than we would have bought otherwise. I personally regret not having gotten more into detail on where we were going to buy our airpower. The Army sort of slipped by with a lot of helicopters as being relatively small, compared with the Air Force and Navy tacair budgets. It was a time of buildup. And, as you all know, it's much easier to put in a new management structure when you can grandfather in all the existing forces and budgets, when you have an increment to split up among a number of claimants rather than a decrement to exact from the claimants. The time was right for bringing in the structure.

I guess I really ought to go back a step. When Systems Analysis started, in the early '60s, the Navy was capable of doing a great deal of very quantitative analysis, none of which seemed to have any effect on decisions made by the Department of the Navy. The other two departments didn't even do a great deal of analysis at the force level. The Air Force did

a great deal of operations analysis but not much in terms of force structure.

Systems Analysis did a lot of stuff that was, in my opinion, unpopular and probably in self-defense. The military departments then built up a capability, first to rebut these analyses and then to do them better than we could. They had better data, and they had better people. Their guys were in uniform; they couldn't get out after two years. They had a lot of advantages that we didn't have.

By the late '60s, there was no reason for us to do these detailed analyses. We weren't doing them as well as the services. We were supporting lower level decisions with the analyses. So, it made a great deal of sense to really concentrate on some of the aggregates and then turn over the real force planning to the people who had the incentive, the ability, and the data to do the planning. It was a natural evolution to get out of trying to do all this detailed stuff at the Secretary of Defense level and have the military departments do it.

The big problem was that the JCS and the service Secretaries never had worked out their act about what's a "military function," a Joint Staff function versus the military department function. But I was delighted to get out of a lot of these issues. I really did get tired of trying to figure out what the Air Force modification program ought to be, and things like that.

Question: When Mr. Laird came in, there was an expectation that, infact, he would do away with the Systems Analysis function. And, as I remember it, there was a retreat, and a pact was made, and Systems Analysis survived. I'm curious about the politics of that. How did it survive?

Dr. Selin: First of all, if a pact was made, I wasn't a part of the negotiations. It may have sealed my fate, but I wasn't really a party to that. I was told to behave a little better. But when Mr. Packard came in, before the new Secretary of Defense took office, it was clear that Laird was going to be concerned with several things: He was going to worry about getting out of Vietnam, try to improve the credibility of the party in power, and try to live within a budget. And, fourth, he was going to try to keep the military from getting as bad a name as it was getting.

He concentrated on those things throughout his tour. I think he did a terrific job on that. Packard really worried about the forces and the programs.

We set up a luncheon with Mr. Packard, when we were trying to decide whether we wanted to keep our jobs (in Systems Analysis) and whether we would be able to keep them if we did want to. We gave him a critique, which, without the sarcasm, is essentially the one I've given you today: It really was time to turn over this detailed analysis to the military departments. The Secretary of Defense needed to be able to look at program budget resources and capabilities simultaneously, and we were the least unqualified people around to do it. I guess that would be considered a promise of good behavior. At least, it was possible to read it that way. And we pretty much did keep out of trouble for a while, except for attempting to "sink" 10 old Polaris submarines. But most of our suggestions were pretty sensible.

Mr. Laird found it was very useful to have me come up and brief the Joint Chiefs of Staff on how we could pull 100,000 troops out of Vietnam with no notice. And then he'd say, "Well, maybe it will be 25,000." And they would say, "You're a great man, Mr. Laird. Thank you very much." So, that was a useful function. We stopped annoying people quite so much. We really did stick to our homework.

NSSM-3 was an enormous success, even looking back at PRM-10, which was done exactly the way you should do a study and therefore failed completely. PRM-10 started off with strategy and worked out forces and, of course, nothing worked. In NSSM-3, we started out with forces and then tried to figure out what strategy could be carried out. You start with what you know, and you work out what you don't know, instead of the other way around. NSSM-3, I would say, really saved Systems Analysis.

I was an enthusiastic supporter of this participatory management because I found that I was giving advice on things that I really didn't care about and never got to the points I really did care about. I was happy to turn that stuff over to people who wanted to do it. There's probably a lot of stuff I didn't know, like, "O.K., we'll keep them around for a year, but we'll sink their ship afterward." I'm not sure that I knew all the negotiations that went on. You realize this is not archival history.

Question: It might make a difference whether we know how to allocate support among the various kinds of force structures, but, even beyond that, suppose you did know, what good would it do if there were no advocates for support?

Dr. Selin: I'll give you a historical answer, but I'm really concerned about your question.

In 1969, there was plenty of support around. All you had to do was visit the U.S. Army in Vietnam to see all the support there was. The Army had a lot. But the forces at home were really denuded; so, there was a question of reallocating the resources, looking at significantly different postures, and trying to figure out what the cost of these postures would be. There was enough to go around, if you could get it in the right places.

I'd say, starting around 1973 or 1974, this was not the case anymore. Let me say this: The civilians always used to like to have all the forces at combat readiness immediately. The military fellows would say, "We're probably not going to fight a war in the next six months, but if we give up three divisions and four wings, we will never get them back; so, let's keep a reasonable framework." The truth lay someplace in between. By the mid-'70s--there's no question in my mind-- there was too much skeleton and not enough muscle, not enough support.

I believe that part of the problem was the lack of adequate analysis and good salesmanship on the part of the analyst. There's really no reason why the military hawks can be so exciting and interesting, and the civilian analysts have to be so boring that nobody listens to what they say. I don't think we as a group did a very good job of explaining to people, who were--at least, for a while-- interested, what happened if you didn't have very good support. When there's a war going on, it becomes quite clear when you don't have ammunition. But, in peacetime, it's much tougher.

But, starting in 1979, the support programs really did start to build up, and, right now, the support programs are pretty well funded. The real problem is that it's a moving target with so much procurement going on. It's very hard, even with adequate resources, to support all that additional procurement. If you don't have enough people to operate what you have, how are you going to operate additional forces? That's not exactly a budget problem. I think it's more of a planning problem that the buildup might be based more on sort of a strategy and appearance of strength than a detailed analysis of readiness month by month. I don't know the answer to your question. As you know, I've grappled with that myself.

Philip Odeen: Let me try here tonight to bridge this little period between the era that Ivan just talked about and, I guess, really Len Sullivan's period as Assistant Secretary of Defense for Systems Analysis. I had been in

the Systems Analysis office during the 1960s, working on Vietnam matters, primarily-- regional programs and things of that type. In early 1971, I became Principal Deputy Assistant Secretary working for Gardner Tucker, who was the Assistant Secretary. Gardner was heavily involved in the SALT negotiations and a series of strategic things, and therefore a lot of odds and ends fell to me. One of the odds and ends that fell to me was the revision of the PPBS system that happened in, as I recall, about mid-1970. I don't have the kind of recall John Keller had last night. He remembers everything that happened 25 years ago. I have trouble remembering my wife's birthday. As a matter of fact, tonight is my wife's birthday, and I forgot it when I accepted the speaking engagement.

The PPBS revision I was heavily involved in was a very interesting exercise from my point of view. We were really responding to the kind of pressures that Ivan, I think, covered very ably. Really, the whole reaction at that time was a very strong one to the McNamara era, to the role of systems analysis during the McNamara era, and, I think, to some degree the particular behavior of certain distinguished individuals.

As a result of that, Mr. Nixon, during his campaign promised to root the systems analysts out of the Pentagon. That statement didn't do much for the morale of our office after Election Day, I can assure you. One of Ivan's many virtues was to keep things under control and get us through that difficult transition period when Mr. Laird decided that he needed a systems analysis office. He needed it for a lot of reasons, I think, but I don't want to get into that tonight.

One of the first things that was done, after this initial year of transition when they went through the NSSM-3 exercise, was the redeployment from Vietnam. This was followed by the budget cuts. One of the next things that happened was a decision to go back and rethink the PPBS process. And I ended up having action for that effort, assisted by a very able young Navy officer, Rod McDaniel, who fortunately is still an active Naval officer. Rod and I handled all the inputs from the services and worked them through the coordination process and finally to Mr. Packard and Mr. Laird, who were making the decisions.

Let me just take you back briefly through what happened. First of all, there was a philosophy. I think the first aspect of it was is that the Secretary's role ought to be to provide broad guidance: strategic guidance, planning guidance, and financial guidance. Ivan talked a bit about how that was done.

The second aspect of the philosophy was that the services ought to have the initiative: No more Draft Presidential Memoranda, which really grated on the services, since the real initiative was in the hands of the Office of the Secretary of Defense. The whole idea was that the services would propose, and the Secretary of Defense would dispose. And that was clearly the underlying philosophy of everything we tried to do.

The third aspect was service flexibility. The services should not be locked into the great nitty-gritty detail that they had been during the '60s. They were going to have the opportunity to use their resources in a way that they thought made the most sense to further our national security.

Finally, we had this whole concept of participatory management that Ivan mentioned. I think that's something that Mel Laird felt very strongly about. In part, he felt strongly about it because he was a very able politician, and he knew this was something that would go over well within the services and would go over, perhaps equally well, on the Hill in the Armed Services Committee, where there was a lot of real hostility to the role of the Office of the Secretary of Defense and, particularly, Systems Analysis during the '60s.

But, also, I think he saw that, at that point in history at least, it was very important to get the services into the loop. As someone pointed out last night, the services had basically opted out of the DPM process. They really weren't playing; they were merely responding to the directives from OSD. And it was important to get them into the loop and to begin to build on the expertise, the analytic capability, and that great experience that was in the military departments. So, he saw it as being important for political reasons as well as substantive reasons.

I think, as Ivan suggested, Mel Laird is an often underrated man. He is extraordinarily bright, and, a person whose intellect is far greater than is usually portrayed. He's seen as a politician. He was that, but he was also a very, very able person.

I recall we spent 6 months or so going back and looking at the PPBS process, very much as Vince Puritano did here 2 years ago. The first step was to structure defense planning guidance. There wasn't anything quite like that during the '60s. The guidance, or the strategy where it existed, was really part and parcel of the DPMs. The DPMs, in fact, had objectives and strategies for the ASW forces, tacair forces, etc. But there was no place

strategy objectives for the Department of Defense. An effort was made to put together this kind of a document, building to a very large degree on the NSSMs that were being done at that time. There was NSSM-3, which Ivan mentioned and there was one called NSSM-84, which was a more in-depth look at NATO, and there was a whole series of other specific, analytic efforts to define our national objectives in a particular region and define what kinds of military objectives we had, what kinds of strategies ought to be pursued, and roughly what kinds of forces were required. So, the idea was to put together defense planning guidance, building on this NSC process, which was then a very important and time-consuming process for everyone in the national security business.

A second goal was to try to build on the JCS process. The JCS were asked to put together draft guidance. We made a major effort to use that as the first cut at the strategy guidance. We started with that; obviously, we made many changes because often it was simply either inconsistent with what the White House was saying or more demanding than the resources would bear. But we did try to start with the JCS documents. We didn't use the JSOP. Another document (I've forgotten the title) that was somewhat resource-constrained was our starting point.

The second thing was the financial guidance. As Ivan mentioned, the financial guidance was fairly broad. It allocated dollars by mission, although the services were permitted to make shifts between missions under some circumstances. There was always a lot of flak, a lot of tension between OSD and the services over how much specificity would be in the financial guidance. Usually the intelligence dollars were "fenced." The strategic dollars were often fenced, or at least a minimum was put in there. At that point, the Southeast Asia assumptions were a very key part of it because our operations there were still consuming a very large part of the budget. And for the out-year planning, we had to have fairly specific assumptions to ensure that there were adequate resources for the war "wind-down."

But the goal, of course, was to give the services the initiative, the opportunity to put together their forces. One of the hopes, at least at that point in time, was that by giving the services dollars to play with, rather than specifying forces, at least the services would end up buying more forces and maybe less expensive forces. Under the system in the '60s, they were told, "You can have 55 submarines and 105 destroyers..." So, there

was a tendency, of course, to make each one of these units as complex, as capable, and as effective as possible. We hoped that, receiving dollars, they would, at least, think of more imaginative force mixes, and, perhaps, would buy more forces or more weapons, although somewhat less costly ones. That, at least, was part of the philosophy. I suspect that it has not worked out quite as we expected.

The third change, of course, was the service POMs, the Program Objective Memoranda, which the services were asked to put together as their idea of what a balanced program would be within their financial guidance and the strategy guidance the Secretary levied. There was also something called a Joint Forces Memorandum, JFM, which the Joint Staff put together. The idea was to conduct an independent cross-service, cross-cutting look by the JCS, which would balance the programs across services and, we hoped, provide some more objective military advice.

Another change was to go away from the rather detailed, complicated program control process. In the '60s, they had things called Program Change Proposals. Every time you wanted to make a change of any kind in the out-year programs, you had to send in a piece of paper to the Office of the Secretary of Defense. It was reviewed and a decision made by the Secretary. There were literally hundreds of these things that went through every year, most of them being rather minor. The feeling was that that was a silly process and that periodic updates of the Five-Year Defense Program would be better. They went to, as I recall, three updates a year: one when you submitted your POM, one when you submitted your budget, and one when the budget was finally agreed on. Much of this very complicated bureaucracy was done away with.

The final aspect of the changes was what was called a "selected analysis program": a series of agreed-upon analyses between the Office of the Secretary of Defense and the services, designed to focus on particular issues that were seen as crucial to making major program or weapon systems decisions in the next POM cycle. So, every year, after the program review, the services and the Systems Analysis office, primarily, would get together and agree on the two or three or four issues that we ought to look at very carefully in a joint analytic effort, so that, come the program review next summer, we would be in a better position to make sound decisions. This process was approved by the Secretary and levied on the services.

Now, how did all of this work? Let me just give you a few thoughts, and I will turn it over to Len and Russ, because I left very shortly after all of this was done. I escaped to the White House, and, therefore, what really happened was beyond my watch.

First of all, I think we had a much simpler process than we had in the past. For one reason—at that point in time, at least— Systems Analysis ran the process. The other parts of OSD—the advocate offices—really weren't that deeply involved in the process. I&L, at that point in time, was a fairly weak organization. They really didn't have much say in things. DDR&E worried about R&D things. Primarily they focused on the budget. Comptroller's organization worried about the budget. And ISA focused primarily on strategy guidance. Once that was beyond them, they really opted out of the process. And you didn't have nearly as many independent advocates for particular programs as you have, at least in my view, in the Office of the Secretary of Defense today. And, therefore, there was a more coherent Secretarial view taken of the process.

We also had far fewer players. We didn't have the kind of massive DRB meeting you have today. It was really a one-on-one between the key people in the Office of the Secretary of Defense and the Secretary. The Secretary would then meet with the service Secretary and the Chief. We didn't have this large process you have today. And, I guess, I have never really been convinced that more players lead to better decisions. But that apparently is not the view today.

A second result, I guess, is that the service programs really didn't change very much. We expected things to change. They really didn't. The same kinds of problems— underfunding, readiness, sustainability—went on. The emphasis on procurement and structure continued (not surprisingly). There was little real movement toward buying more, cheaper forces, as some of us thought might happen. One exception might be the Bud Zumwalt period. Bud was then Chief of Naval Operations, and there was a period when he attempted to buy what were then called PFs and, I guess, FFG-7s later on—sea control ships. There was an effort of 2 or 3 years there to buy more, less costly naval ships. I think that was the one exception, and that exception didn't survive long beyond Bud Zumwalt's period in office.

The third result was not much of a success in terms of getting the JCS into the

process. I guess we should not have been surprised by that. But they simply are not structured, as I think you all recognize, to take on these cross-service kinds of issues.

During the initial period, there were a few hopeful signs. There was an Army general who was J-5 at that time, John Elder, a very, very able fellow, who really did his best to make the process work. In fact, the first JFM came in and suggested some relatively important force structure changes. They suggested taking out one of the carrier task forces (which you now call carrier battle groups). They suggested going from 13 to 12, as I recall. There was obviously a rather strong Navy footnote.

In fact, the best thing about those initial one or two JFMs were footnotes. There were a lot of footnotes in there. They were a bit like the old days and the National Intelligence Estimates. You really learned what was going on by reading the footnotes. There were some interesting and helpful footnotes in those initial JFMs until people began to figure out that people in OSD were reading and doing something about them. Those footnotes suddenly disappeared. But the JCS role, with a couple of very minor exceptions, just didn't develop and for reasons that I think you all recognize and ones that Dave Jones has very ably presented.

The final result, I guess, was a fairly substantial improvement in the atmosphere between the Systems Analysis office and the service staffs. There was still a lot of tension and a fair amount of hostility. But I think the relationships were certainly less acrimonious than they had been in the '60s. We were winding down out of Vietnam—a very emotional issue for a lot of people. The budgets were being cut back steadily and very substantially. And, yet, we got through that period without any major problems, any major outbreaks of opposition of the military going to the Hill or the public. And, I think, to some large degree, Mel Laird's political skills, the whole idea of participatory management, and the fact that the initiative was given to the services played a not insignificant role in that process.

Let me close at that point and turn it over to Len.

Mr. Leonard Sullivan, Jr.: I took time out today and, instead of listening to the other speakers and learning something, I stayed in my office and typed out some notes for tonight. I am forced to repeat and to follow my notes because I think it's interesting. I wanted to start with my view of how I saw the situation when I first moved into that job. And it is a dead ringer for what Phil saw and sensed when he left it. So, I'll repeat it just because I think it's interesting that two different people have exactly the same view of what was happening at the time.

The Vietnam "tail-off" was still underway. The early '70s were a period in the United States when there was probably more disaffection between the American people and their federal government than we would ever hope to see again. The military itself was haunted by a nagging feeling of humiliation by what was going on in Vietnam and how their hands had been tied. They had a continued distrust of civilian leadership. Not only had they been whipped by McNamara, but they had been whipped by civilian leadership during the Vietnam war. And, as far as I'm concerned, Laird's innovation of participatory management was the only thing that saved a good deal of OSD, and for certain it's the only thing that saved Systems Analysis. I think it would have gone under during those years.

Budgets and force levels were coming down, Congress had forced our hand, forced us out of Vietnam; then they forced us out of Vietnamization. Congress was busy limiting Nixon's powers and got into the Impoundment Act issues. It also was setting up the budget committees and hoping that it could improve its own appropriation process. My recollection from DDR&E was that the PPBS system at that time had reluctant support from the services. It was an improvement over what had gone before.

One of the things you will find from serving on the OSD staff is that the military rotates. It's very hard to destroy a "bad taste" from prior years because people who have been away for 3 or 4 years come back and they assume that the situation has not changed. So, you find that you keep trying to tell people that the situation has changed. I was still doing that in '75 and '76. This was not the McNamara years, but the military, in large measure, didn't believe that.

I think Phil was right, and I was interested that he mentioned this point. There was no participation, really, in the rest of OSD. ISA was certainly not playing, I&L was not playing, and DDR&E thought the Systems Analysis staff was a bunch of traitors. You know,

they paid no attention whatsoever to the process. I automatically became a traitor by joining that operation.

The SALT negotiations really did preoccupy the time of Gardner Tucker. And there were a great many people who thought that Systems Analysis really wasn't doing anything other than the SALT negotiations at that time. To the best of my recollection, Systems Analysis was essentially operating underground. And I was in no way any part of the Airlie House business in '69. But it was clear, as the services used to tell me, that they were now working in the closet with the light off. And that was about the opinion that I remember of the Systems Analysis era that preceded me.

At the same time, I think, there was something very interesting going on. Dave Packard's initiative in the DSARC process had created a whole new arena in which a lot of these things were debated. And instead of debating these things through the PPBS cycle, it was an additional opportunity to show the virtues of the analysis in the DSARC process, for good or for bad.

So, it was a pretty depressing time. I had been in the Pentagon for 9 years. I was Principal Deputy in DDR&E at the time. I had just come back from spending 6 years trying to win the war in Vietnam with technology. And, interestingly enough, I had followed the military home to see them in what I learned was really their natural habitat, rather than playing the PPBS games. I had learned a healthy skepticism for analysis.

My first exposure to analysis was to it as a sales tool, when I worked in industry. Analysis seemed rather irrelevant to what had happened in Vietnam, and so did technology, for that matter. I also had a rather declining respect for what the amateurs who drifted through OSD could do to improve on what the military were doing. This was mentioned yesterday and again a little today as a difference between a 2-year commitment intellectually and a lifelong commitment. I had seen enough bodies and things like that in Vietnam to be impressed by the fact that it was indeed a commitment.

I had also spent a year probing the emerging problems of growth in weapon systems costs, a thing we had called the Little Four, which was essentially an investigation of the DSARC process as it had emerged by late 1972. Out of all that, I had concluded very strongly that DoD was suffering from a lack of long-range planning. It had been an old favorite of mine before I joined the government, and, sure

enough, it surfaced again. I had already started the process in DDR&E to try and do mission-area analysis. That was in 1972. It was a fledgling start, but we were in fact trying to relate needs and programs to various missions.

I reluctantly accepted Richardson's offer to go down and do the Systems Analysis job, not as an Assistant Secretary. And I insisted on two things. One was that I not have anything to do with the SALT negotiations because I didn't want to disappear down that hole. And I insisted on a change in name. And so, PA&E emerged, not because I wanted PA&E but because it was the only thing we could get the JCS to approve of. Interestingly enough, I wanted to call it Program Planning amd Evaluation. The JCS went back to the Secretary and said only the military does planning. So, with that limitation, it became Program Analysis and Evaluation, and I took that as a failure because I really wanted to get the name "analysis" out of the title.

I spent a couple of months going around and talking to the people with whom I was going to have to work, to see where in fact I could find some common place to work with them. That was a very discouraging enterprise, incidentally. I decided that if I could switch the emphasis away from analysis and toward planning, then there would be some offer to me to find a common ground.

I spent another hour today trying to figure out what I was pleased that I had done, and now you'll find that you're listening not to an analyst but to a planner. And I think it's important because this conference has to do with not the future of analysis but the future of the planning and programming system.

I feel I did as much as—or more than—any of my predecessors to establish an open dialogue with the services. I did that by the establishment of the thing I called Mil 5. That was a weekly meeting with the programmers of the services. The meetings were sort of one-way downward when we were busy; the meetings flowed the other way from the services back up when we weren't busy. Through the discipline of the meetings—virtually every week for the 3 years I was there—we got to know one another. And we developed some cooperation.

At the same time, I established a group with the rest of OSD, and that was called the "OSD Seven." That was myself and the other six offices in OSD that were supposed to have something to do with the PPBS process. So, I spent a lot of time trying to get the other

offices in OSD to share the burden, if you will. I saw no reason why we should take all the heat when half the problems were in I&L or ISA or wherever.

We had an open dialogue on defense issues with the services, only because of the nature of the man for whom I worked. Although I said yes to Richardson, I woke up the next morning in bed with Schlesinger. And, actually, we found we had some things in common; so, it worked out all right. The thing I liked most about Schlesinger was that he enjoyed the process of formulating his opinions in full view of as many people as would fit in the Secretary's dining room. And, on a monthly basis, we would raise issues on which no decision was needed at that time. The representatives from OSD and from the affected services would be at the table in the rear rows.

And here is one place I would disagree with you, Phil, on the business of whether more people make better decisions. I think more people would make worse decisions, but more people would understand why they were made. And those who think that decision making is a problem don't understand the problem. The problem is getting somebody to implement the decision. This was one of the areas where Schlesinger was at his best because, in fact, the participants in those meetings learned what was driving him. So, when the same issues reappeared at PPBS time, the services had a much better idea of how to couch them.

I also had felt that EPAs were important. I was sure you couldn't determine the affordability of a program by looking only 5 years ahead, when you had programs that were 10 years in development and 20 years in production. I established a policy of filling the FYDP and making it a planning device rather than making it an accountant's record of decisions already made by the Secretary. And that seemed to be a rather basic change. We were always confronted with a FYDP that showed we were going out of business because, clearly, there was a limit to what the Secretary had decided on for future years. I saw no point in this accountant's record as a planning device. The question was: If you filled the thing as full as we thought we could get it, could you afford things? And, frankly, it frightens me when I hear someone say that he hasn't got any room in his FYDP for the next 5 years. If that's the case, he's a lousy planner. He is a lousy planner because he should have "wedges" and alternative plans in there.

Schlesinger's major objective that he and I agreed on was that we had to somehow stop

the slide in defense budgets. Part of that was to come up with a rationale which would allow some change in this trend. In fact, we succeeded in doing that. I guess one of my proudest accomplishments was that I know that I succeeded in convincing the budget committees, the new budget committees of the U.S. Congress, that Defense had to have an increase in spending every year in the out years. Now, to my dying day, I will regret the fact that I picked 2 percent because it needed to be more than that. But we sold the idea that the defense budgets had to increase, not decrease.

On the basis of that, we established relatively fixed force levels. This was Schlesinger's initiative, not mine. He said, "Look, we can get these guys' cooperation only if we give them force levels that are higher than they have now and encourage them to convert their assets from fat to muscle." The incentivization during this phase was not to steal from the services the things they found they could save on, but allow them to reapply them within their programs.

It was an interesting thing. I guess we went for 3 straight years without challenging the 775,000 men in the U.S. Army. I think that was the first time PA&E ever stayed away from that particular subject for so long. Meanwhile, General Abrams was busy trying to change the "tail-to-tooth ratio" and all of that business. It seemed to work reasonably well. We rewrote the Defense Guidance again. It was an interesting thing trying to recognize that that was OSD's "request for proposals" to the services and that their POMs were the bids that they would submit in response. The groundwork had all been laid on that by Phil Odeen, and I would say that we did nothing to improve the basic structure of the PPBS process at all.

We did do some interesting things in an effort to get the services off the cry that "We're working too hard because you slobs request us to do all these things." We approved the idea of marginal POMs. If, in fact, the services only wanted to come back in the fall one year and tell us the incremental changes to the POMs that were required by something that had happened in the last year, they were free to do that. But you know they didn't want to. And only one of the three ever accept' our offer. It was, in fact, the Army. The other two said, "No, we want the discipline." What was unsaid was that they wanted to blame it on us, which was not the fact.

Systems Analysis also had to provide the point of tangency, if you will, between the PPBS process and the DSARC process, and there were more people who were enthusiastic about

the DSARC process that was creating new demand than they were about the PPBS process that tended to constrain that demand. I felt that it was PA&E's role to try and form the bridge between them.

In any event, we did succeed in achieving a relatively stable top line for all of 3 years, and that top line was an increasing top line. And in fact, I guess Schlesinger and myself can look back in history and, if you look at TOA and cost and dollars, we did pull out and we did start up. And it was a shattering blow to have Carter come along and say, "We're not going to do that."

We had a public top line and a Congressional top line that was higher than the one that we shared with the services. This meant that PA&E and OSD were maintaining a management reserve against which the services could bid and which would cover the services when they overran. So, in fact, we were completely happy with the fact that we had told the Congress we needed 2 1/2 percent growth in the out years. We shared with the services only a 1 percent growth in the out years and, as each out year came in, that money was obviously filled. I think that's a planning device that is of some significance. One of my big problems was to try and retrain my Charlie Groovers, my John Tilsens, and the people who have been in PA&E and who are much smarter and better analysts than I was. I was trying to get their irritant value down with the services to save my own skin. For 3 years, I thought I was going to be killed in the parking lot.

One of the things that I did was put a bottom threshold on the issues that could be raised by my own staff. And what we did was try and work that threshold up so that unless it was—I can't remember where it ended up—a $2 billion issue over 5 years, it was hands-off as far as my people were concerned. And I tried to exercise a second discipline: You couldn't try the services twice for the same crime. So that once we lost on an issue, I was damned if I was going to blunt my sword bringing it up again. It just seemed foolish to keep going back in and banging my head against the same issues. Now, my guys didn't really object to that too much.

I also tried to constrain our PA&E role in the DSARC to two things I thought were related to PA&E matters. One was the affordability of things. I hope nobody has to take a lie detector test tonight because I mentioned those words. But affordability is the whole essence of the long-range planning issue. It's probably the only reason you do it. So, affordability, I thought, was in our corner.

Here's where I got into trouble. I felt the certification of the basic need for a new program was also within PA&E's bailiwick. And so, I got very interested in this process of DSARC zero, which, I guess, will still make some of you wince.

And I also got trapped because some Congressional staffers found out about DSARC zero and converted it into something called OMB Circular A76. So, I guess if I ever learned my lesson about taking something that was probably a sensible thing to do in principle and then ruining it by turning it into a federal regulation, I think that was just an outstanding example. That's what happens when you try to manage by regulation rather than good sense.

I was very interested in "aging" the PA&E people. I was willing to trade all sorts of brilliance and brightness and photons and all that kind of thing for a little judgment and wisdom. That was a very hard thing to do overnight, and it wasn't clear that I had any success. Anyway, I tried to deemphasize the acquisition preoccupation, even though it's been said by Ivan that he tried to do that, starting in '69. I would say that, even in my years at PA&E, the primary emphasis was still on changing the handle on the control stick and whether you should buy VTOLs or non-VTOLs. There was much less attention paid to manpower and ONM business. As a matter of fact, when I finally got the manpower and ONM shops up above threshold and doing a good job, some analyst came along and reorganized them out of PA&E and put them in the other departments. That killed them.

You know, it sounds like I've had nothing but successes. I had a lot of major failures, as a matter of fact.

My first failure was—and I mentioned that earlier—settling for a 2 percent annual increase. It was probably all the traffic would bear at the time, but it set a target that was too low, and people have been trying to raise it ever since.

Second, even though I like to believe it is what cost me my job, I was unsuccessful in coopting the budget committees into really paying more attention in the out years than the near years. If as plannners you ever have visions of becoming Secretary of Defense, let me tell you one thing not to do: Don't put three different parts of OSD in charge of relations with different parts of the Congress. We had the Comptroller working the appropriations committees, Legislative Affairs working the authorization committees, and PA&E working the budget committees. And that was a

formula for my demise and I'm sure a lot of other unnecessary problems. But the fact of the matter is that I was very proud that I was let out of the closet, and was allowed to testify, and was allowed to try and put long-range planning into perspective.

We didn't recognize the danger of trying to force all of the services to program their forces to the same scenario hierarchy. And we made a disastrous mistake there. When I mention this, I still find people looking at me with blank faces. NATO may be the first responsibility for the Army Reserve; it is not necessarily the first responsibility for our active forces. It surely isn't the major responsibility for the Navy. We know it isn't the major responsibility for the Marine Corps. It certainly isn't the responsibility for our strategic airlift. And, somehow, I went through all my years in that building without understanding that each force component had to be driven to a separate option and that that would be all right because they would still be able to work together when they met on the battlefield. It is still not done today. Dave (Chu), I would encourage you to move in that direction. You simply have to be able to tell each of the force components that it has a different first priority.

I was totally unsuccessful in getting a grip on or institutionalizing these historical growth trends that have taken place in all the appropriations. Any of you who are planners and still believe that O&M is constant in constant dollars out into the future or that the next generation of aircraft isn't more expensive than the current in constant dollars, are doing your services a terrible disservice.

I was unsuccessful in getting a grip on the Studies and Analysis budget, which I was very anxious to do. That proved to the services that I was still the same old Systems Analysis. What I was terribly worried about, and as the previous speakers have said, the system analysis communities in the services had grown up to fight those in OSD, and we learned how to fight with one another. The fact was the system was still chugging along, not paying any attention to analysis that just sent them in to work on just fighting with one another. It was the most extraordinary mass of wasted talent that I can think of. And, although I make my living at it, I would say that now extends out into the contracts that are offered to "Beltway Bandits" and the like.

Last, I never could gain the confidence of the rotating military. I don't think anybody ever started from a better position than I did. If I'd been there for 15 years, I might have been able to. But I couldn't fight the flow of new people coming from the service schools, repeatedly learning songs that the enemy is System Analysis. I'd like to offer you a little advice—and I'm running overtime, I realize. I think the DRB approach is a very sound one. A lot of people snicker about that because it's still a bunch of people who don't know very much, sitting around point papers and things like that, making poor decisions. But they're learning about one another. And that isn't bad because—let me tell you—you can go through years in that building with the Secretaries of the services not speaking to one another. As a matter of fact, before the DRB, they didn't have anything to do. They really didn't. You know, this transition team that came in with the Republicans had recommended doing away with them. I worked for a different transition team, which is why I'm not working for the government. My recommendation was to give them something to do. I think it's a very good thing they took the latter approach.

Now, I would hope that you never forget that you can't do affordability planning without including the EPAs. You've got to go out 15 years. And one of the dumbest things you guys do is assign the EPAs to one shop and the FYDP planning to another shop, as though they were different things. To those of you who look at the EPAs, you find they don't match the last year of the FYDP. So, we're 100 percent sure that they're not done by the same people. Clearly, they shouldn't be done in the same detail, but you should aggregate sets of things and then stream them out for the next 10 years.

If those EPA projections don't include the historical growth in these major accounts, you're in for one hell of a shock. O&M is growing at the rate of about 2-1/2 percent a year per man in uniform, but only one out of the three services has projected that past the next 5 years. And it makes a difference of about 50 percent in your procurement account by the time you get out another 10 years or so. It's a big number.

The other thing is that planning is worthless if you have only one plan. I don't know why it's taken so long for this to occur to me, either. We heard a little about this yesterday. But if you services don't plan for a variety of top lines on your own and if you don't recognize the mechanisms whereby you can move from one to the other without stopping all the programs before they mature and starting programs that don't get a chance to mature, your planning probably isn't worthwhile.

So, Wednesday, when the Navy asked the Air Force if they were planning for cuts in the budget, it was interesting. The Air Force essentially said, "Well, I wouldn't tell you if I were." I guess the problem of these things is going public prematurely. It also struck me that the Navy was planning for an alternative future; it would never acknowledge that. But you know that our acquisition plans, and our O&M plans, and everything else have got to be built around flexibility in the out-year program. And if out-year whiplash really drives you to the hospital, you're not planning properly. You simply have got to be able to shift the procurement mix, shift the active/reserve mix, shift the deployment mix, with Democrats versus Republicans, good times versus bad times, and these types of things. And if each time there is a change in those out years, you all say it's OSD's fault or System Analysis' fault, you're not being good planners.

I think there has to be a better way to plan for major cross-service issues. I guess, in my old age, I have reached the conclusion that the services are incapable of taking on multiservice responsibilities and persisting in them.

I think the solution to that is very simple. We have to have an out-year plan and EPA for OSD in the Defense agencies, and there has to be in essence a "fifth service" that does the things that the four services have made demonstrably clear they're not willing to do. The business of trying to overcome the NIH factor and making people take on programs they're not basically interested in is just wrong. It defies good management techniques, and this business of out-of-one's-hide syndrome is real and there is no way to avoid it, other than not stuffing the things into one's hide that one subsequently wishes to remove again.

But I would argue that planning is more important than analysis, and I would argue very strongly that the only people who can do that planning are the services. They're the only ones with the continuity and good sense over the long run to do it. And if they don't do it, there is just no point in blaming anybody else, from the Secretary to the PA&E, the Congress or anybody else. Nobody is keeping you from doing good planning except yourself.

Mr. Murray: Well, I thought we'd take up the story with what things looked like at the start of the Carter administration. It marked a change in style. I guess there's been a change in style every time a new Secretary of Defense comes in. Most times, there is a change of management style. When Harold Brown came in, there was indeed another change in style.

What we found when we got there was that the DPMs had long since disappeared. There was nothing, really, in their place. There were three planning documents, three guidance documents. One was called Defense Guidance. The Defense Guidance had profound statements in it along the lines of (and I am not kidding) "the United States is a rich and powerful country with many allies," and "the principal threat is the Soviet Union." There was also some planning and programming guidance, which was issued more or less at the same time. It covered a vast variety of things, from limits on GS-15s to profound issues of strategic theory. After that was issued, some months later, Fiscal Guidance was issued.

Now, it seemed to us that there should be some correlation among all these forms of guidance. So, we decided to mesh them together and call them Consolidated Guidance. What we wanted to do with the Consolidated Guidance was essentially the same thing that had been done in the DPMs, less the detailed third part of the DPMs in which Mr. McNamara outlined what the FYDP was going to look like. Our thought was to get some sort of a statement of what the defense strategy and policy was going to be in each of the main functional areas. We wanted that to start a dialogue with the services and find out if there was agreement or disagreement and try to hammer out something better. We needed to express a rationale. We needed to show some analytical underpinning for the defense program.

And, more than that, we had a neat idea, which was that we ought to get the President involved in this, because it was very clear that President Carter was taking the deep-end, very detailed interest in the defense business. Our thought was: If he's going to get into it, we'd better get him into it early in the cycle and not at the last minute. I went thumbing through my files today, looking for things to jog my memory, and I ran across a few. And this was an interesting one, I thought. This was something that Harold Brown sent to the President in October of 1977, when the administration was not brand new but still had not settled on the planning and programming system.

What this said was, "In the past the Secretary of Defense issued three separate guidance documents between November and March to advise the services in the preparation of their annual programs and budgets. Much of that guidance was too general to be of real use. The linkage between policies and objectives, on the one hand, and program and costs,

on the other, was not explicit. There was no authoritative statement of, or analytical underpinning for, the rationale underlying our defense program. And both the Secretary and the President were forced by the system into the roles of judges rather than leaders. For the fiscal '80-to-'84 cycle, we are considering changes to correct these problems. An attractive possibility is to combine the traditional three guidance documents into a single consolidated guidance. Around February, before the services begin to develop their programs, this document will be ready for your approval" ("you" being the President). "It would give you not only a comprehensive view of the very roots of the defense program but also the opportunity to shape it early enough in the cycle for the department to accommodate efficiently to your changes. While in no way precluding actions later in the cycle, this will allow you to concentrate on the basic structure before we become absorbed in the details. The major issue still to be resolved is how best to adapt the system to more active leadership from the top without stifling initiatives and incentives for efficient management at the lower levels."

Well, that was a great idea, and it flew like a concrete cloud. The President wasn't the least bit interested in committing himself in any way to a defense budget that early in the year. But it was a try.

One of the things that we later did in the guidance--how well it worked surprised me--was the switch from simple Fiscal Guidance to Fiscal Guidance at three levels. Now, I've been around the business long enough to remember the Eisenhower A,B,C, and later D budgets and all the opportunities that gave for "gold-watching" and "gaming."

However, we decided that we would try it, and the Fiscal Guidance was issued in three layers. One was called the basic level. That, nominally, grew at the 3 percent real growth. It was constrained, of course, by OMB's inflation allowances, but it was supposed to be a 3 percent real growth. We had an enhanced level which started out, as I recall, 5 percent higher than that and actually diverged from the basic level an extra percent each year. On the other side was the decremented budget, which was 5 percent below, and a further 1 percent below that each year. So, we had a fairly wide range of Fiscal Guidance to look at.

We had a couple of ideas. One was to accommodate changes in the budget itself as a whole; another one was to investigate reallocations within the budget. This gave us some feelings for what the spreads were. Our thoughts were, innocently enough, that we would show the President what difference it made whether he picked the decremented, basic, or enhanced level. We would try to get some sort of commitment from him about where he wanted to end up. If he wanted to end up someplace in between those two, we would retire to our dens and combine the adjacent programs in some sensible way to come up with a fully balanced program at whatever level he wanted. Well, unfortunately, the Georgia Highway Department had come aboard and was enthralled with zero-based budgeting, in which everything was prioritized, allegedly. I can recall the pair that were opposite the first year that impressed me. That was the year when the nuclear strike cruiser was still in the POM at $1.2 billion, and right next to that was a radar for Redstone Arsenal at $1 million. The implication was that if the budget was this high, you'd buy the radar, and if it went any higher, you'd have to buy the strike cruiser.

We had a little bit of a problem with quanta in that year. We could buy either 24 F-14s or 36. But no way could we buy 30; that wasn't in the plan. So, that didn't work and furthermore it was obviously a one-year budgeting system. There's no way to get out-year effects; different programs, of course, have different cash flows, and you can't order them in a prioritized list.

However, we argued as hard as we could, lost, and were finally told that it was not the Georgia Highway Department that was in favor of this, it was the President of the United States, and shut up and get to work. So, we were stuck with zero-based budgeting throughout the Carter administration.

We had a lot of fights on the idea of the Consolidated Guidance. I thought some of that might be interesting to discuss for a moment because it does get into some of the important implications of what PPBS is all about. You may recall that there was a time when a new Under Secretary for Policy was created, and the post was eventually held by Stan Resor and, later, by Bob Komer. One of the things that was advised then by both the Ignatius and Steadman reports on the changing of the management of the Department of Defense was that the future Under Secretary for Policy should control the Consolidated Guidance. Well, that was directly an attack on my turf; so, I fought back. But I think that it was not just the turf attack. I think there are some interesting issues here, and if you can restrain your hunger, I'd like to run through a little memo that I found interesting to think about again today.

This is to Harold Brown, trying to persuade him how it would be a bad idea to have a separate section inserted into the Consolidated Guidance, full of policy, much as the Defense Guidance had had policy, that was more or less divorced from anything else. It seemed to me that policy should be treated as an internal matter. The Steadman report had said that the role of the Under Secretary for Policy should include a showing that national security objectives are reflected in the Consolidated Guidance and other PPBS documents.

Ignatius said, "In the absence of prior policy formation the Consolidated Guidance could prevent judgments on ways to satisfy a range of policy options derivable from overall national security interests, could constrain the definition of risks to fiscal rather than broad strategic objectives, and could avoid the check and balance of analysis oriented to the alternative perspectives of national security and defense policy. This problem originates in the lack of long-range and contingency political and military planning within the Defense headquarters, focused on the overall national security interest, and from inadequate integrated, political, military, analytical, capability outside the program system analysis orientation of PA&E and the services." Well, that's a little heavy going, but you can get the flavor of the thing.

I went on to say that I would not want to defend the current CG as perfection, but I do wonder whether it's really as deficient as all that. For example, it seems to me that the following is evidence of the presence of policy statements in the CG. This one relates to general purpose forces and objectives for NATO. I cited a policy statement which read, "Our general purpose programs will be shaped and sized largely by our determination--this is in the CG--"that the military strength of NATO nations as a coalition will be great enough to maintain stability in Europe. We face an immensely strong and growing military power to the east. Our near-term objective is to assure that NATO cannot be overwhelmed in the first few weeks of a blitzkrieg, and we will invest and spend our resources preferentially to that end. When that assurance is reasonably in hand, we will turn our attention to whatever additional capability NATO might need to be able to fight for at least as long as the Warsaw Pact."

I went on to say, "In my opinion, if that citation is not a statement of policy, it will do until one comes along. It was written in PA&E in a supreme effort to rise above the narrow-program, system-analysis orientation of PA&E alleged in the Ignatius report." I go on

to say a few nasty things, such as: "They really should have read the CG before they made their comments," and things of that sort.

Whether or not there should be a separate section of CG in which all the policy statements are pronounced or whether the policy statement should instead be integrated into the other sections that deal with whatever forces or region the policy applies to depends on one's philosophy. Adherence to the linear sequential theory that policy leads to programs as crime leads to punishment would, no doubt, favor a separate policy section. But those who adhere to the iterative, integrated, single-ball-of-wax, can-of-worms theory, feel that such distinctions are artificial and, because it's hard to draw a distinct line marking the end of policy and the start of something else, arbitrary. For those reasons the current CG integrates considerations of policy with those of effectiveness and cost into what we feel is the most lucid form for the exposition of sometimes complex issues.

I went through a thing that demonstrates how, in the CG, we started out with policy and ended up with something that's really quite specific, which seemed to be the way that planning, programming, and budgeting should be done. You heard that citation of the policy statement, and I will read a few more here that excerpt sections from the NATO part of the first Consolidated Guidance--or perhaps it was the second.

First, what I'm trying to point out is that there is a gradual drift from the area of policy through increasingly detailed systems analysis and alternatives and recommendations and guidance, and then, finally, Fiscal Guidance that ties into the policy.

It starts off by saying, "In Europe itself, NATO's purposes are: first, to deter direct Pact aggression; second, to counter such aggression effectively if it should occur; and, third, to limit the effectiveness of the Soviet military force as an instrument of political pressure." That's pretty much a policy statement.

It goes on, a few pages later, to say that "continued deterrence of war in Europe requires three things: (1) That the threat and consequences be unacceptably severe to the Warsaw Pact, (2) that NATO forces be recognizably capable of inflicting these consequences and (3) that NATO's threat to actually inflict them in event of war be credible." Still quite policy-oriented.

A couple of pages after that, it says, "The Soviets apparently anticipate a period of

tension before any outbreak of hostilities in Europe. In peacetime, nearly--(blank)--percent of their divisions--now getting a little more scientific here and a little more analytical-- lacked major portions of their personnel and equipment, although the forces in Eastern Europe are kept close to full strength." A couple of pages later, "a three-front offensive of--(blank)--divisions could be generated in about--(blank)--days if the Pact waits for the Polish and other Eastern European reinforcements."

Then, on another page, it says, "the table shows the expected wartime allocations of NATO and Warsaw Pact ground and tacair forces. Then, a few pages farther, "the force ratios illustrate the degree of Pact superiority" (see, we've gotten away from policy now - we're getting into analysis) "that will exist over time."

After a few more pages, it says, "the graph indicates that we should be more constantly concerned with getting well equipped forces on-line rapidly than with increasing the total size of the ground forces." Now we're getting closer to programming. "The greatest needs"--this is several pages later-- "of U.S. ground forces oriented toward the NATO center region are increased mechanization and quicker reinforcement." The Army might have taken some issue with that; nonetheless, that's what we believed. "If a light division is mechanized, at a one-time cost of over $500 million, its effectiveness in the European conflict will be increased by about 40 or 50 percent. The best method for accelerating our ground forces' reinforcement is further pre-positioning of equipment." Then, after a few more pages, it says, "Activate nine additional heavy battalions programmed in the ninth infantry division to be mechanized, expand the current POMCUS program," etc.

It says, "Army fiscal guidance has been adjusted to accommodate the following estimated costs of these actions." Then, there's a table. And it shows '80-'84, and it breaks down how much for the nine battalions at 100 percent manning, how much in the ninth division conversion, and how much for POMCUS. It comes out to be, in the 5 years, $800 million, $1-1/2 billion, $1 billion, $1 billion, and $900 million. It says, "Thus we have come full circle from broad policy statement to a tabulation of the dollars needed carry it out. My assertion is that policy is alive and well and living in the current version of the CG. It is also integrated, as it should be, in the development of the defense program, right alongside cost, effectiveness, schedules, and all the rest, and is not hanging out in solitary and irrelevant splendor after the fashion of our old friend, the BNSP.

That was a fight that I put my back into and lost. The CG was afflicted with a policy statement that I thought added very little. My criterion for what a policy statement should say, whether it was satisfactory, was whether you could distinguish by their actions those who had read it from those who had not.

Another thing we did, after losing that battle, was to create the DRB. The DRB was an idea that really was proposed by Don Rice as part of his change for the way that OSD operated. He wanted to combine programming and budgeting into a single cycle. I fought that one and, fortunately, won it. I'm very happy, for that was one I really didn't want to lose.

But we built the DRB, and the reason we built the DRB was that Harold Brown got deeply involved in SALT II, and he spent a lot of time on it. He said, "Look, I just can't go to all the meetings we went to last year. You've got to have some way of getting me out of that burden." So, we created the DRB, which was to get the OSD officers together in the Deputy Secretary's dining room. The Deputy Secretary would chair these meetings, and we would have a bunch of issues, and we would try to resolve these issues among the staff. We would then report to the Secretary those issues on which the staff had been unanimous, and what that recommendation was, as well as those issues on which there had been a split. And Milt Margolis and his guys would stay up all night to report what had gone on in the meeting. The Deputy would meet with the Secretary the next morning. Things worked fairly well that way, although I must say, as an old analyst and programmer, I wondered what it was that the Secretary was doing that was more important than discovering the programs. That shows you how parochial my views are.

It worked, I think, quite well for its purposes. I don't think it's a good idea not to have the Secretary directly involved. But if the Secretary can't be involved, it is a good way to get around the problem. I might say that it is quite a different concept from what is used now in the DRB, which includes participation by the services. When the DRB was created, it was a way of accelerating the OSD review of the POM, not a way of having the services argue their programs in front of the Secretary of Defense. I'm not saying that that's not a good way of doing it, but it's a different way of doing it, that's certain.

We had other conflicts. One of the things that we did was have several sections written outside of PA&E, which had also been true back in the days of the DPM. The thing, unfortunately, got awfully long. We got up to a 363-page Consolidated Guidance. There are just few

people that are going to read 363 pages. So, we decided to cut it down and we cut it to 115 pages. But we ran into an interesting thing that I think has implications for the way the Department has managed.

The Secretary threw out the four sections that weren't written in PA&E in the last year of the CG, on the grounds that they were devoid of a rationale, they didn't discuss alternatives, and there were no estimations of cost. They were full of details that the Secretary could obviously not have written. This was a document to be signed by the Secretary, and there were parts in there where it was very clear that it was being written at a relatively low level. And there was a great deal of mandatory guidance. Now, the Secretary did want some way to control things that he felt very strongly about and that he wanted to mandate. And we called those mandatory guidance and we tried to kept the numbers as limited as possible and not put in any unnecessary mandatory guidance. Well, in many of these sections, there was a great deal of mandatory guidance that was drafted by the staffs at a relatively low level.

That brings up an interesting point about the management of the Office of the Secretary of Defense. There are very few offices in the Secretary of Defense's office that do not have their own vested interests, and that becomes something of a problem in trying to arrive at a program and a budget.

The services are really quite good—not perfect, but really quite good—in following the Fiscal Guidance, and, when you say, "Come in with three programs that follow the following contours," they pretty much do. That goes to OSD to get a review, and every office that has a vested interest in anything comes along and puts its little "kiddy car" in there and its hobby-horse in here, and the thing grows and grows. It's absolutely irresponsible.

So, then I said, "I'll fix that: For anything you put in, you've got to suggest an offset." That was just chaotic, absolutely chaotic. People were suggesting offsets in programs they knew absolutely nothing about. You'd find these conflicts where guy A would offset B, but guy C had raised B so it was impossible. That is a serious problem in how you should manage that. The way it's done now is that the Secretary makes those decisions himself. That's an awful burden, and that impressed me as one of the things that needed to be improved.

There's another thing. Len Sullivan spent a lot of time talking about the relations between the civilian and the military, and I

think that is an important issue. We wanted military participation. (It doesn't do any good, Sully. There's no way you can get them to believe you.)

One of the things that I found going through those files was a letter that I wrote to a fellow on the outside who wanted to know how the system worked. It describes how it worked at that time quite well. It says, "the second principle, which somebody should try to explain to Tommy Moorer is that there is service participation at every step on the way." (I'd given him a little schedule.) I said, "Notice how much of the time in the schedule is devoted o giving the services a chance to get their oars in and argue" (that was 14 out of the 35 weeks of the PPBS process annual cycle), "and how much time we set aside to be able to respond to their inputs, another 10 out of 35 weeks." So, we have 24 out of the 35 weeks in order to try and encourage a dialogue with the services.

"If we just cut that all out," I say, "we could wrap the whole process up in a small fraction of the time it now takes. Instead, we give them the opening shot, plus a chance to come back at us, first on the CG, then on the POMS, and then on the budget scrub and the budget prioritization, both in writing and in face-to-face meetings, with the agendas of their own choosing. The services may not like all of Harold's decisions, but they can hardly complain about being frozen out of the process or given no opportunities to state their case. The system is most definitely the same as Bob McNamara's, no matter how often Tommy Moorer claims it isn't."

I found another memo, too; this was back in February of 1978. After our first meeting, with the Chiefs having control of the agenda and meeting with the Secretary of Defense and the Deputy Secretary, with really no particular time limit, I dashed this off after I got back to the office: "Harold, a few quick observations on this afternoon's meeting on the CG. I'm sitting here, shaking my head, feeling as if I've lost my innocence or at least my naivete. I've always assumed that our senior military leaders would view the fundamental issues underlying our national security policy as the area in which they can make their most important contributions. Whether the civilians in the DoD somehow frustrate them in that role and freeze them out of the process has long been a source of controversy. It was with that in mind that I suggested these meetings as part of a new PPB system.

"I assumed that the Chiefs would recognize them as presenting them with an opportunity quite unprecedented in military-civilian relationships, the chance to speak to

you, face to face, at some length, more or less uninterrupted, with the agenda under their complete control, on the most fundamental defense issues.

"As I drew up that list of what seemed to be the major issues, the other day, I was greatly encouraged. It seemed that there might be a possible agenda covering the real guts of this business. I thought there was a good chance that these discussions really could turn out to be something different--something challenging, broad in scope and addressed to the problem that at least worries the hell out of me from time to time.

"But, judging by the almost universal criticism that we have included no separate section on policy in the CG, I was led to expect that matters of fundamental policy would be discussed and judging by comments such as 'the result is that policy and strategy tend in the CG to become secondary to programming and fiscal considerations,' I did not expect that dialogue over these fundamental policy matters would be interrupted by programmatic or fiscal details.

"But how did the first two meetings turn out? After all that ruckus, what did we get? Did we get down to policy, or strategy, or objectives, or whatever? Not really. We may have dabbled around the edges from time-to-time, but we never really dug into such matters. We never really addressed the fundamental issues of the absolute level of the Defense budget. We hardly shed any light on the question of overconcentration on the Central Front--about which I don't know whether it's the case or not--and I got no help on the question during those meetings.

"But we sure did cover a lot of narrow, programmatic details. Perhaps that's because, at least according to critics, the CG set the stage that way. But, in my opinion, those meetings were entirely too indistinguishable from the meetings we held with the services during last year's POM review.

"What a wasted opportunity. Where are the distinguished military scholars in uniform? Are we reduced to professional military advice via the JSOP? Is OSD always to have so much influence, merely because it fills a vacuum? I'm disappointed. We gave the golden opportunity, and they chose to use it to argue for programmatic changes, for relief even from your limited amount of mandatory guidance, and they urged some gobbledygook section justifying all conceivable requests and the resulting edged-in-black estimates of military risks. Perhaps things will look brighter tomorrow."

That, to me, was really a surprising thing. We had tried to set up the meeting to discuss the most basic issues of national security, and it didn't work. It turns out that that's a very, very difficult thing to do. Actually, I think, if you look at national security planning, those issues are almost never discussed anywhere. They're not addressed as the man in the street would assume they are addressed. That, I found shocking, and I think that's still the case.

In line with that, one of our tasks, the one which I found most interesting, was the development of a paper, which I think was something along the lines of NSSM-3. We did it for a PRC meeting.

The idea was to tie together all the alternatives, starting with alternative objectives, trying to calculate what the force balances would be in the theaters of interest, given no change in current estimates and current intelligence, trying to determine what the force ratio should be for a high and a low degree of risk, estimating what that would take by way of forces, making allowance for how many of those forces we would have to contribute and what the effect of Allied contributions would be, therefore deriving the necessary U.S. Defense budget, and going on to trying to derive the economic effects on the country.

For that purpose, we had held a seminar, one of a series of seminars, to ask a bunch of distinguished economists what would be the effects of a 10 percent increase in the defense budget if you managed it properly. We had Larry Klein from Wharton, who had just won the Nobel Prize, and Otto Eckstein from DRI, Michael Evans, etc. It was an interesting seminar, the general conclusion of which was that, if properly managed, the country should not have a great deal of difficulty in managing a 10 percent real increase in the defense budget--if properly managed with adequate fiscal planning.

I was particularly proud of the paper, not because it was the last word, but because it seemed to me to be something that was better than had been done before. It got into terms that, I think the President would have found more useful with regard to national security. The paper presented information in a somewhat different light. It gave an economic analysis, with all the uncertainty of economic analysis. At least, it was an approach tied to various objectives that we might achieve with our national security policy.

Well, we did that right at the time of the election, with the idea that if he was

reelected and wanted to reevaluate this national security policy, we'd have a head start on that. It got as far as a meeting chaired by the Secretary of Defense, with everybody there except the President. By that time, of course, it was a lame duck administration, and it never went any farther. So, I don't know what will ever happen to it.

But it seems to me that that was the ultimate purpose of analysis. The highest purpose of analysis in the PPB system is to lead more directly into considerations of how you can best inform the choice of a national security policy. Because that really is something that I believe is done very poorly, if at all, today. National security policies are, by and large, picked out of the air without serious analysis or without serious thought to what the consequences are. People say we have a strategy-force mismatch, and they are right. It's very clear why we have a strategy-force mismatch, because nobody ever asked about the cost when they decided to pick the strategy. And nobody ever asked the Chiefs, "What are the risks?" The Chiefs are ill equipped to tell you, but they are never asked in any case. So, there's a great deal to be done there. I think that's the most important role that PPBS has to play in the future. I hope it will happen. Well, thank you very much.

Professor Blandin: I think there's time for a few questions. Please indicate to whom you are addressing your questions.

Question: Mr. Murray, why did you fight Don Rice's suggestion that we ought to combine programming and budgeting into one phase instead of going through the whole thing twice every year?

Mr. Murray: If you try to combine them into a single review, you get your choice: You can do programming, or you can do budgeting. But you can't do them both. The thing that's going to get done is budgeting, because the Congress is going to demand the budget. So, you're going to do a thing in the exquisite detail of the budget. Well, that's an awful lot of work. When are you going to do it? The program review, presumably, should have a fair amount of control over what you're doing, and that could result in massive changes in the budget. But you can't take massive changes in the budget at the end of the year because it takes you too long to recalculate everything. You have too many ricochet effects. So, you have to back it up and start it earlier. Well, if you start it earlier, your budget is out of date by the time you send it to the Congress; so, that isn't going to work. I think there's a

lot to be said for the review, although it may sound redundant.

The idea of the POM review should be to outline the broad structures of the defense programs, not the details. And you should deal with the big issues. The budget is where you get into the excruciating details. The budget is largely a one-year orientation. Programming should certainly pay a lot of attention to the out years, as well. So, it didn't seem to me it was a practical thing to do.

One of the things that kept being raised as the reason for doing this was that "we're visiting all these decisions twice." Well, there's no reason why anybody has to visit a decision twice. All you have to do is say, "No, we have decided that. I'm not going to review it again." It's just a matter of discipline. Having a single review doesn't get you out of that problem because the guy can still raise the issue five times in a budget review.

Anyway, I succeeded in my argument there—I think, not because of logic, but probably just because it's too difficult to change, and we were always at the wrong point in the cycle to do it.

Mr. Sullivan: I'd like to weigh in on that. I disagree in one area with Mr. Murray here. There's no way to keep from revisiting the same issues, if, in fact, the top line for the budget hasn't been established at the time you do the POM review. When I was there, we had an agreement that we would give the Comptroller 1 percent of the budget to use during budget review time. The trouble was that Nixon and Ford changed their minds as to how big they wanted the defense budget to be by "n" billion dollars in November. There was no way that you could avoid having PPDs to cut programs. So, in a lot of the PPBS things, people who were looking up at it thought that management was just dumb. And people who were looking down at it realized there is no control in any one place by which you can fully organize the process. That's one reason I believe that planners have an obligation unto themselves to plan for more than one alternative and to be ready to come back with an option that fits the bill.

Mr. Murray: We had three layers of programs. We had three programs in entirely different levels. If somebody wanted a budget in the middle, we could just pick a little of this and a little of that until you got to where you wanted without really revisiting a decision.

Comment from the floor: One comment on that. I agree with Russ on the logic of two separate systems because--simply--you can't draw the budget without some proper program structure. A budget is an annual thing. I disagree with Len in this sense. If the top line comes down, I would agree that there comes a time when you have to revisit programs in the budget review process. If that were, in fact, the way practice carries out, I'd say, "Great!" But it isn't. What we do right now, all too frequently, in the budget review process is, in fact, revisit those programmatic decisions where a proponent has lost the argument and he wants to give it another try. In addition, the danger of it is that what he does is totally screw up a well structured program.

If, on the other hand, people have, as you noted, properly planned and are told: "You just got dinged "x" dollars in TOA or outlays; go back and come in with the change you're going to recommend," then, one can come back in with a balanced response.

Mr. Sullivan: We were all screwed up because the reasons the budget changed every year were different. One year we were looking to add TOA with no outlay implications. The next year we were stuffing the programs with outlays to get over an economic problem. And, the third year, we were trying to whittle away at outlays. And, again, you can't do that--I don't think--without revisiting a program.

Question: Russ, I would like to go over one thing about the Consolidated Guidance. It seems to me somewhat inconsistent to talk about the guidance document as a precursor to the development of a service POM. It gets down to talking about here is "x" additional dollars to do this specific thing. Or here is a specific force table or reaction table, rather than being more subtle or holding it out, or soliciting from the services their response to that kind of thing. But, obviously, you felt comfortable doing that.

Mr. Murray: Clearly, what was happening was a reversion toward--although, by no means, all the way to--the McNamara style of management. That was what was happening. Now, the services did get a chance to comment on it because the CG was issued to them for comments, long before it became final. And if they objected to it or had some alternatives, they had plenty of opportunity to talk about it. That was the meeting I referred to. That was after the issuance of the CG, when you'd hope you would discuss such things as: Should we be building up Europe, or should we be building up the RDF, or should we be going for readiness instead of procurement--all these issues.

So, there was plenty of opportunity for control. But I think the point that you're getting at is that the Secretary of Defense was much more actively leading the Department than his predecessors had, with the exception of McNamara. That was just Harold Brown's style. He wanted to do it.

Question: Could you give some assessment of that? Do you sense that's the right way or simply the Secretary's style?

Mr. Murray: Do you mean intrinsically right?

Question: Yes.

Mr. Murray: Yes, it depends on what style you like. It seems to me that managing the Department is a job for an active Secretary of Defense. Now, the thing is how to share the balance. McNamara, I think, clearly went too far toward centralized control. You simply cannot run the entire Department from that office. There has to be some delegation of authority. Everybody will agree there has to be some delegation. There certainly can't be total delegation, where the Secretary becomes nothing more than, maybe, a judge between two alternatives that he can't control. I think that Brown's choice was pretty good. I think it's closer. I'd lean away from the direction of the current Administration; it seems to me that it delegates too much.

Question: Let me put it, then, in just a slightly different way. It seems to me the essence of PPBS is information for decision making and that "over guidance" or specific guidance deprives the decision maker of that information. I'm going to argue tomorrow that "fully funding the requirement" is a terrible statement in PPBS because it deprives the decision maker of information. And over-specificity in the guidance, if you're going to have a POM phase, does the same thing. It doesn't allow the system to develop alternatives. It prejudges the outcome and insists on adherence to a "line" rather than exploration around that "line."

Mr. Murray: That's right. It does. Presumably, you don't do that unless you have a very good reason. You should feel quite strongly about a particular issue. If you just come along and arbitrarily start writing everything down without knowing what you're doing, that's a very dumb thing to do. But these pieces of guidance from Harold Brown were not just picked out of the air. They're the kind of things that he felt very strongly about and also, as I say, it was not final. The services were given an opportunity to respond. Harold

Brown was much more receptive to service counterarguments than McNamara ever was. I think my track record of persuading Harold Brown that I was right and the service was wrong was dismal.

Professor Blandin: I think there's time for one more question—if and only if it's asked by a former Assistant Secretary of Defense.

Comment from the floor: It's not so much of a question as a comment. I think we need to get Ike Selin back because Ike told us that, when he was running things, OSD had perfect control over what the services did; that is, they made suggestions, which the services followed automatically. And, as far as we know, he didn't issue any guidance at all. So, I think that was great.

Professor Blandin: I want to thank the panel very much.

SERVICE PPBS: A COMPARATIVE REVIEW OF NAVY PROGRAMMING

by

Rear Admiral Joseph Metcalf III, USN
Director, General Planning and Programming
Department of the Navy

and

Captain Ray Walsh, USN
Head, Plans and Development Branch
General Planning and Programming Division
Department of the Navy

Dr. Cabe: During the first session this morning, Admiral Metcalf, the Navy's programmer, will give a presentation on how the Navy develops its POM. Now I'll turn the session over to Admiral Metcalf.

Admiral Metcalf: I'll introduce the man who is going to tell you what we do. Actually, the gentleman who is going to go through the POM today is, in my view, one of the coming intellects in this PPBS business. We have heard about the past, the present, and the future. In many ways, Ray Walsh and his counterparts in the other services—the colonels and the commanders—are what is going to make this system go.

But a word about the Navy POM and the process we use. Ours is significantly different, I think, from those of the other services. (In fact, one of the problems we have in the Navy is that very often we have a problem explaining ourselves to OSD, and sometimes to ourselves.) I think you will see the differences today. And some of you who are familiar with the Navy way of doing business will see changes, because this year we have taken a number of initiatives to change the way the Navy puts its POM together. These initiatives address the way the Navy thinks through the process and comes up with a program within Fiscal Guidance. The elements we have used for years are still there, but some of the refinements are significant. And one of the reasons I would like Capt. Walsh to give the presentation to you today is that, in large measure, he provides the thought behind lots of the things we do.

We are going to 'address the Navy POM development process from a broad and micro prospective. We are going to get down into some micro parts of this problem, because I feel that part of what drives the way we do business is the explosion in management information and our capabilities to use that information. Ray will go through a section on how we use the capability of large mass storage and information machines to help us do our work. I think it is enormously useful but, by

the same token, I think it is something we have got to watch very carefully to see that it does not consume us and get us going in directions we shouldn't be going in. With that preface, I would like to introduce Capt. Ray Walsh. I'll take questions afterward.

Captain Walsh: Good morning. One note: We do not have a whole lot of money in the Navy. We have one set of slides. There are some things in here that we talked to different people about, so I won't talk about all of the things on the slides. **[SLIDE 1]**

Slide 1

PPBS is the thing I would like to concentrate on. We are very much like the Department of Defense in that we have centralized policy direction and decentralized execution. We also have participatory management—much more so than I think you have seen so far. **[SLIDE 2]**

Slide 2

We do the planning, programming, and budgeting much as everyone else does. One of the things that you will see is that in our programming process--inside the second bullet--we also lo planning, programming, and budgeting. **[SLIDE 3]**
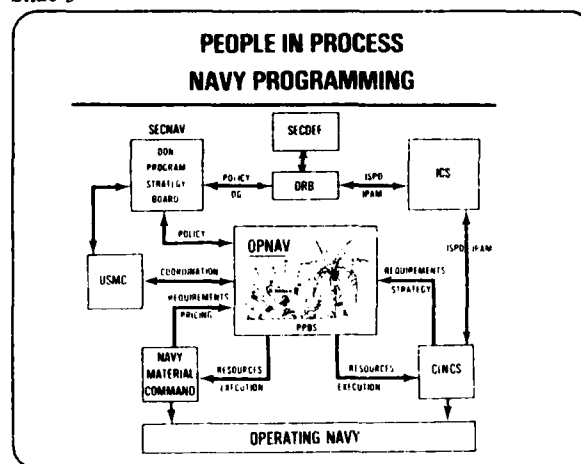
This is "who plays and how they play." The Secretary of Defense (at the top) plays through the DRB. As General Morgan and Bob Larkin mentioned yesterday, we are a little bit different from everybody else in that we have two services within one department. That makes for some interesting differences in the way we do business. The Commandant of the Marine Corps and the Chief of Naval Operations both work through the Secretary of the Navy, but they also have direct coordination with each other. We have officers from the Marine Corps assigned throughout the OpNav staff, developing the analysis and doing the programming (in many respects). On the bottom of this side, we have what we call "claimants" (I will talk about them in a bit). The Naval Material Command and the CinCs give us the strategy, pricing, and requirements. We in turn give them the resources. They run the Navy. **[SLIDE 4]**

We have three panels. The top panel, on the right, is a new invention this year. All of the things that we do in the programming process and throughout most of the execution of the planning and the budgeting process is done through these panels. The Program Development and Review Committee, chaired by Admiral Metcalf (on the left), is the two-star-level committee. They review all of the analyses, all of the proposals, and all of the assessments, not only in programming, but also in the acquisition process, in the development of strategy, in the planning process. It is a common group of players who have a rather wide perspective across the whole Navy. Every branch of OpNav is represented.

At the lower right-hand corner is the CNO's Executive Board. This is a decision-making panel, chaired by the CNO. Included in this representation is the Commandant of the Marine Corps. Included on the PDRC is General Morgan, representing the Marine Corps. We also have the Secretary of the Navy represented at the PDRC, so that we have the full spectrum of the staff looking at the problem. One of the things that you will see as we go along is that we try to look at the Navy in as many different dimensions as possible.

In the upper right-hand corner is the three-star-level committee. This includes the Deputy Chiefs of Naval Operations for the various warfare areas, the support areas, the manpower area, etc. They are the people who actually run the Navy, and they report directly to the CNO. **[SLIDE 5]**

Slide 3

PEOPLE IN PROCESS
NAVY PROGRAMMING

Slide 4

PEOPLE IN THE PROCESS
PROGRAM ANALYSIS AND REVIEW

PDRC PROGRAM DEVELOPMENT REVIEW COMMITTEE
PRC PROGRAM REVIEW COMMITTEE
CEB CNO EXECUTIVE BOARD

Slide 5

THE PEOPLE IN THE PROGRAM DEVELOPMENT PROCESS
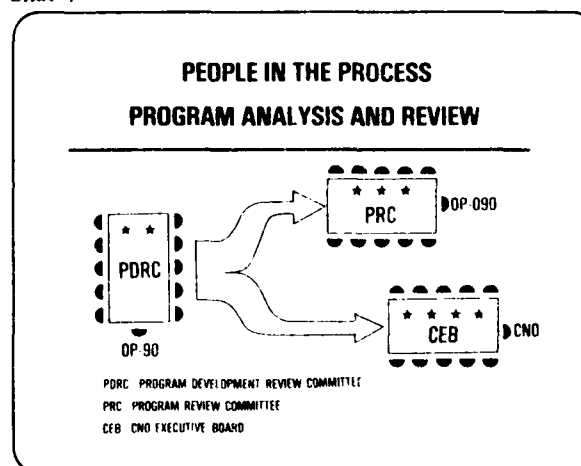
We have a concept called "sponsors." Perhaps one of the differences between the Navy and the other services is in this concept of sponsorship. We have resource sponsors who actually "own" the resources that run the Navy. We have mission sponsors, who "own" the missions (for example, ASW, AAW, strike warfare, amphibious warfare). They are responsible--the resource sponsors and the mission sponsors--to the CNO for either their resources (platforms, submarines, aircraft carriers, surface ships) or the functions/missions they perform.

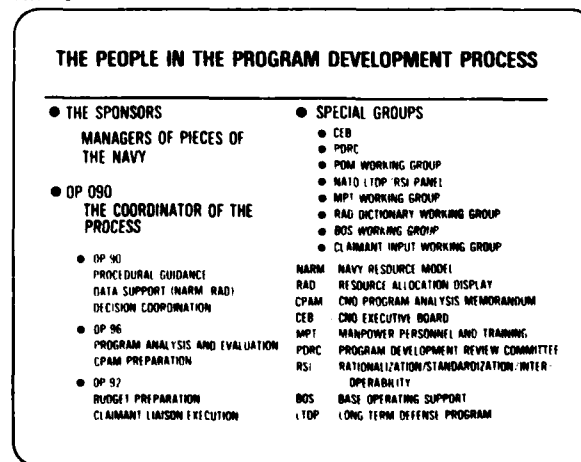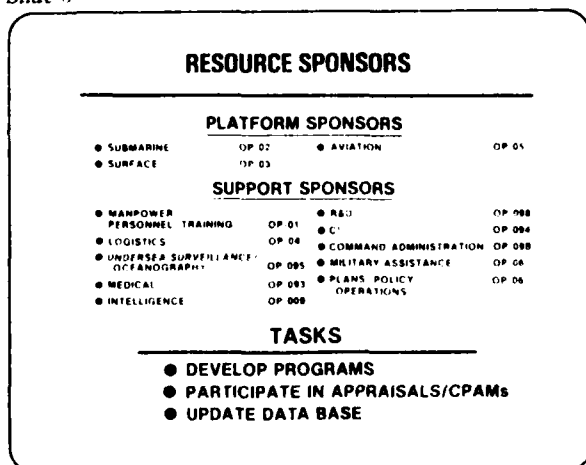Op-090 is the honest broker. He has working for him three two-star admirals: Op-90, (Admiral Metcalf); Op-96, the Systems Analysis Division (Admiral McCauley); and Op-92, the Budget Director (Admiral Miller). Op-92 is also double-hatted. He works directly for the SecNav as the Budget Director of the Navy for both the Navy and the Marine Corps. We have a number of other groups, and I will get into most of these as we go along. [SLIDE 6]

actually in the water--for the programming of FY-85 (in POM-85), and for the long-range submarine warfare plan out through the year 2000.

The same is true in aviation (Op-05). The same is true in the support areas. For example, in C^3, Admiral Nagler--who is Op-094-- is responsible for the day-to-day operations of the command, control, and communications network of the Navy. He is also responsible for looking into the future.

We look at the Navy from about 17 different directions. And, within each one of those points of view, we try to look at the Navy from a functional, from a warfare, from a platform perspective. Each one of these areas is the responsibility of a two-star admiral (or, in some cases, a three-star admiral), who will look at the Navy from his perspective. He will provide an assessment to the CNO from his perspective within these different areas of how the Navy is doing. [SLIDE 7]

Slide 6

RESOURCE SPONSORS

PLATFORM SPONSORS

● SUBMARINE	OP 02	● AVIATION	OP 05
● SURFACE	OP 03		

SUPPORT SPONSORS

● MANPOWER PERSONNEL TRAINING	OP 01	● R&D	OP 098
● LOGISTICS	OP 04	● C³	OP 094
● UNDERSEA SURVEILLANCE / OCEANOGRAPHY	OP 095	● COMMAND ADMINISTRATION	OP 09B
● MEDICAL	OP 093	● MILITARY ASSISTANCE	OP 06
● INTELLIGENCE	OP 009	● PLANS POLICY OPERATIONS	OP 06

TASKS

● DEVELOP PROGRAMS
● PARTICIPATE IN APPRAISALS/CPAMs
● UPDATE DATA BASE

Slide 7

ASSESSMENT SPONSORS

● WITHIN DESIGNATED ASSESSMENT AREA
  ● DETERMINE ISSUES
  ● PREPARE BASELINE EVALUATION (NOV)
  ● MONITOR PROGRAM DEVELOPMENT
  ● UPDATE EVALUATION (MAR) TO INCLUDE COMMENTS ON COMPLIANCE WITH SECDEF SECNAV/CNO GUIDANCE INTERESTS AND RECOMMENDATIONS FOR PROGRAM BALANCE

● SPECIFIC AREAS

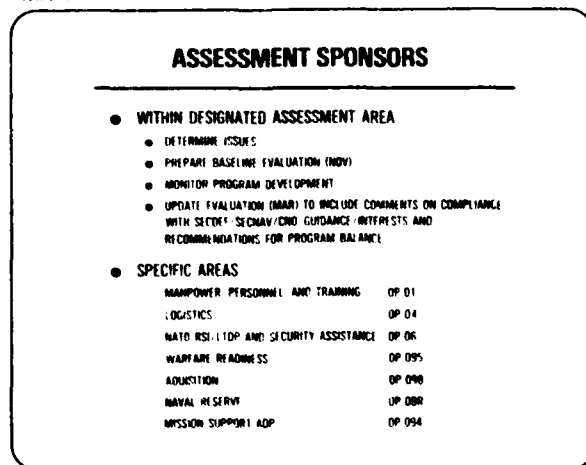|	
MANPOWER PERSONNEL AND TRAINING	OP 01
LOGISTICS	OP 04
NATO RSI LTOP AND SECURITY ASSISTANCE	OP 06
WARFARE READINESS	OP 095
ACQUISITION	OP 098
NAVAL RESERVE	OP 09R
MISSION SUPPORT ADP	OP 094

The resource-sponsor notion is, I think, different from what you have seen before, because each one of these people actually "owns" the resources that are the U.S. Navy. Op-02 (submarine warfare), for example, owns all of the resources--the construction of the submarines, the operating of the submarines, the overhauling of the submarines, the manning of the submarines--everything associated with submarine warfare. He is responsible, not just for modernizing the submarine force, not just for building a submarine force or for operating it, but for the full spectrum. He is responsible for what is going on in the submarine force today--the submarines that are

We cover not only the support areas, but also how we fight--warfare readiness. Warfare readiness is not just whether we have enough guns and bullets and fuel today, but also whether the weapons are capable against the threat, whether we need to be going in a new direction.

Some of these people also have the function of an appropriations sponsor. [SLIDE 8]

An appropriations sponsor primarily provides an interface with the budgeteers and with Congress. Within the programming process, we do very, very little of appropriation-type

APPROPRIATION SPONSORS

	APPROPRIATION	SPONSOR
SHIPBUILDING & CONVERSION, NAVY	SCN	OP03
AIRCRAFT PROCUREMENT, NAVY	APN	OP-05
OTHER PROCUREMENT, NAVY	OPN	OP-92
WEAPONS PROCUREMENT, NAVY	WPN	OP-03
RESEARCH, DEVELOPMENT, TEST & EVALUATION	RDT&E	OP-09B
MILITARY CONSTRUCTION, NAVY	O&MN	OP-92
MILITARY PAY, NAVY	MPN	OP-01
OPERATIONS & MAINTENANCE, NAVY RESERVE	O&MNR*	OP-09R
MILITARY CONSTRUCTION, NAVAL RESERVE	MCNR	OP-09R
RESERVE PAY NAVY	RPN	OP-09R

*OP-92 ACTS AS COGNIZANT OFFICE FOR POM COORDINATION

- TASKS
  - SUPERVISE APPROPRIATION
  - REPRESENT NAVY BEFORE CONGRESS
  - MANAGERS HANDLE THE DETAILS

*POM   PROGRAM OBJECTIVES MEMORANDUM

manipulations. But these people are the go-betweens, having participated in the planning, the programming, and the budgeting. They are the go-betweens with the OSD Comptroller, with Congress, and with the various activities that go on outside of OpNav that look at the Navy from an appropriations point of view.

The claimants are the people who actually execute the programs that we budget. [SLIDE 9]

CLAIMANTS

- HAVE PRIMARY RESPONSIBILITY FOR PROGRAM EXECUTION
- SUBMIT SUGGESTED PROGRAMS TO SPONSORS
  - NAVMAT SYSCOMS PROVIDE PRICING ESTIMATES
- REVIEW AND COMMENT ON PROPOSED PROGRAM
  - CINCS STRATEGY REVIEW
  - RAD II (OCT FYDP) AND RAD IV (JAN FYDP) SCRUB
  - BREAK DOWN (TC UIC LEVEL) APPROPRIATION TOTALS FOR OCT JAN INTERNAL NAVY FIVE YEAR PLANS
  - OPTIONAL CLAIMANT INPUT TO IDENTIFY ISSUES
  - SPPDS WRITTEN BY RESOURCE SPONSORS TO DEFINE PROGRAM CHANGES IN RESPONSE TO CLAIMANT INPUT

These are the CinCs--CinCLantFlt, CinCPacFlt, the Naval Material Command, the Naval Military Personnel Command, and the supply establishment. These are the people who are responsible for executing the program we put together. We have tried very hard to get

them integrated into the the programming process. So, from the very beginning, they have a role in the decisions on how we put these resources together.

One of the things that we have started with more carefully is this first bullet--the CinC strategy review. While the CinCPac, CinCLant, CinCEur are talking to the DRB, our component commanders are talking directly with the CNO. Several times a year, the CinCs meet with the CNO. They talk about how we will fight: the problems they see in the world situation, things that are often not considered in the way that the Department of Defense looks at the world. As an example, you have the problem of what to do on the north coast of Africa. We look at the north coast of Africa differently from the way CinCEur, perhaps, does. That is not his problem. But if you happen to be sailing around the Mediterranean, it certainly is yours--as was demonstrated last year. So we look at the world from a perspective that is somewhat different from, perhaps, the way the CinCs look at it. And we try to get that integrated into our planning very early.

One of the things that I will talk about in a minute is the CNO's Program Analysis Memorandum on exactly how we view the maritime strategy: What are the alternatives? How should we use the forces we have?

We provide each of the claimants (each of the people who are going to spend the money) a data base which gives them, in line-item detail, all of the resources that are currently programmed for their use and who the sponsors are--both resource and mission--for those resources. It provides them with a common vehicle from which they can provide issues directly back to the resource sponsors on things that they think ought to be done differently.

We get involved in great detail. In many cases, we provide resources by ship hull numbers and by individual Naval stations. We also count the people. The pile of papers is very high. The claimants go through this data. They talk to their own people (the COs of ships and squadrons, the COs of bases), and they understand, from their point of view, how they would like to see the thing done differently. And they provide an input back to the resource sponsor saying, "Gee, this is all very nice. But you are not doing this, you are not doing that, this has to be done." The resource sponsors have to consider those inputs, and they have to respond directly back to the claimant

on the actions they have taken with respect to the issues that have been raised.

I will talk a little about data bases. (The Admiral has already touched on it). **[SLIDE 10]**

This is a "composite" of the number of data bases that are currently running around the Defense Department. There is no way you could possibly do anything rational with all those data bases. We have chosen not to use them, by and large. We try to interface the data base that we have with the different requirements that are up there, but, as you can see, various people look at the Department of Defense and the Department of the Navy from very different perspectives, and it sometimes becomes difficult to maintain an audit trail. **[SLIDE 11]**

The Five Year Defense Program is what we actually do use. I will show you in a minute that we use it a little bit differently from the way some other people have. I'll also show you some of the problems that you have using our data base because you don't have the information that we have. **[SLIDE 12]**

Every time we put up this slide, it gets a "My God, what are you doing?" This is an attempt to show you six of the seventeen various dimensions that we use in looking at the Navy. Starting at the top, with major programs, is the way that OSD most often looks at us. The next one around, appropriations, is the way the Comptroller and the Congress often look at us. The next one around, the resource sponsors, is the way we have carved up Navy resources and the way the Navy resource sponsors—or the platform sponsors—look at the Navy. The Naval warfare areas and the functional assignments, the tasks that have to be done in order to run the Navy are another way to look at it. The major claimants look at it from a different perspective. And, finally, you have the four pillars.

The last time I looked, we had seventeen different ways of looking at Navy resources. And the data base that we use has to be able to sort our resources and be responsive to any of the people who are trying to get some information or trying to make an input into the process. **[SLIDE 13]**

This is the standard DoD look at the world—the FYDP. It looks pretty comprehensive. You have the operating appropriations, the R&D accou... , and the department (in this case the Navy), broken into ten different areas, which include the ships and the airplanes, and what-have-you. The FYDP is based on program elements.

Slide 10

ACCOUNTING STRUCTURES, THE PROBLEM

1 MOST PRIVATE FIRMS USE A SINGLE ACCOUNTING STRUCTURE

2 OPNAV FINANCIAL MANAGEMENT IS ENCUMBERED BY THESE MULTIPLE ACCOUNTING STRUCTURES

Slide 11

FIVE YEAR DEFENSE PROGRAM (FYDP)

- **BASIC DOD PROGRAMMING DOCUMENT**
- **INTEGRATED AND COORDINATED PROGRAM**
  - FORCES, COSTS, MANPOWER, PROCUREMENT AND CONSTRUCTION
- **STRUCTURE**
  - FIVE YEAR $ HORIZON (EIGHT YEARS FOR FORCE TABLES)
  - CONSTRUCTED TO PORTRAY DATA TWO WAYS
    - MAJOR FORCE PROGRAM FOR DOD REVIEW
    - APPROPRIATION FOR CONGRESSIONAL REVIEW
- **UPDATED THREE TIMES EACH YEAR**

Slide 12

WAYS TO SLICE THE NAVY PIE
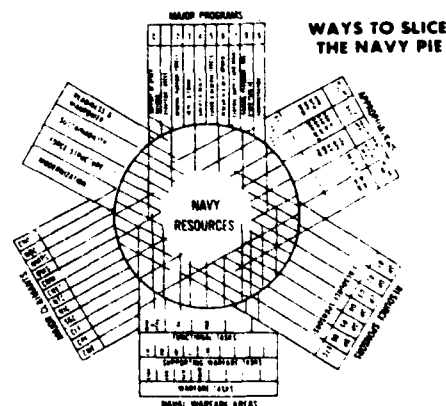
There is a problem with this, however. You had a presentation yesterday that talked about sorting the PEs and all the neat things that that gives you. The problem is that, within a PE, all of the O&M money, which goes for various and sundry things, shows up as one number. It is not broken down. So, you can't tell the difference between civpers and fuel and modernization and overhauls and spare parts. It is all one number. And if you are trying to look at the Navy from the point of view, say, of readiness, sustainability, and modernization, and you have in that one PE (in that one O&M number) the money that is going to pay for modernization, spare parts, ammunition, and pay for the civilians—all in that one number—and you try to roll that up and do something with it, I would suggest to you that you are going to get some very peculiar answers. That is one of the reasons I raised the question I did yesterday. [SLIDE 14]

We have what is called a "resource allocation display," which is very similar to the FYDP. However, when we have an appropriation, it is by line-item, by Activity Group/Sub Activity Group (AG/SAG) detail. So, when I am looking at the O&M account in a particular PE, I am looking at the pay for civilians, I am looking for the dollars that go into fuel, I am looking at the dollars that go into the various things that O&M buys, and, if necessary, I can sort—based on that activity group (or subactivity group)—by line-items, and I can also sort by claimants. I can tell you where in the world, whether it is in the Atlantic Fleet, in the Pacific Fleet, or in Europe that these resources are going to be spent. It gives us the capability of looking at the Navy from those various dimensions.

We have coded each one of the PEs (the Navy data base has on the order of—for OSD purposes—perhaps 300 PEs). Within the Department of the Navy, in our programming process, we have a little over a thousand. For each one of these program elements, we have subprogram elements, and a resource sponsor will own a piece of a program element. For example, if you are looking at base operating support, Op-03, who has surface ships, will have a sub-PE that has all of the bases that belong to surface ships. Op-05, who has aviation, will have a sub-PE that has all of the Naval air stations.

Within those sub-PEs, we have broken it down further to show: the claimant, whether it is Atlantic Fleet or Pacific Fleet; the mission sponsor, whether it is logistics or air warfare or submarine warfare. Using this system, we can go into a great deal of detail,

Slide 13
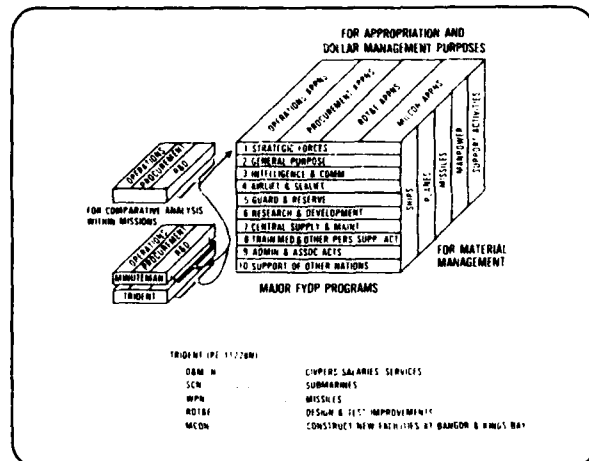
Slide 14
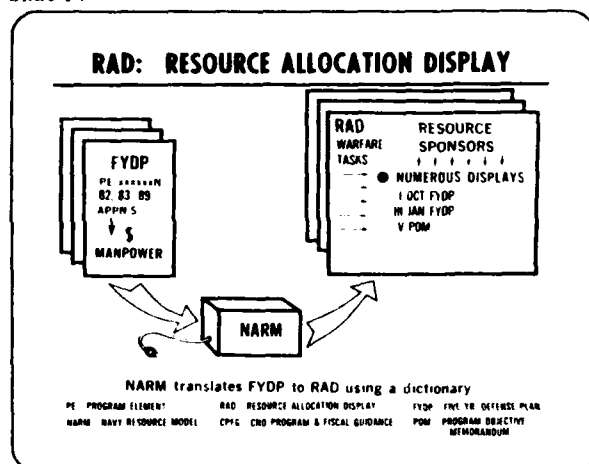
and that is the detail necessary to rational programming.

We also have a matrix approach. [SLIDE 15]

This, again, consists of two of about seventeen dimensions. For every intersection in our data base, there are at least two people who, in a sense, own that money. The resource sponsor is responsible to the CNO for the programming of those dollars across—for example, in Op-05—all of the things that are involved in air warfare. And, then, looking at it from a different direction, we have mission sponsors—or assessment sponsors—who are looking across all of the different ways of doing antisubmarine warfare, all of the surface ships, all of the submarines, all of the aircraft, etc.

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RESOURCE ALLOCATION DISPLAY

ASW — ANTISUBMARINE WARFARE
TOA — TOTAL OBLIGATION AUTHORITY

The first part involves doing our homework. From about the time we get the PDM, until the time we get the Fiscal Guidance and Defense Guidance, we are going through a process of looking at ourselves from each of these different directions. We go through a series of warfare appraisals, strategy assessments, and support assessments. We try to come up with all of the things that tell us how well we are doing what we think we ought to be doing, what kinds of things we could possibly do differently, and how much that would cost us. We also look at things that are, perhaps, soft. That is a hard thing to get at. But one of the things that we are trying to force on the system is this continual look at what is soft.

From this whole process, we want to provide the CNO and the Secretary of the Navy with the best information with which to make decisions. We have, in our process, an early decision point. About the end of January, the CNO makes a decision on how he would like—as a first cut—to have the resources allocated or reallocated within the Navy. Throughout the program development period—from January to April—we go through the business of taking the homework that we have done, applying it to the program that we now have and the guidance that we have gotten from OSD, and, in particular, the Fiscal Guidance that we have gotten from OSD. We take a first cut, if you will, at how we reallocate the Navy, how we change it, how we accommodate all of the homework that we have done and the new distribution of resources contained in the guidance.
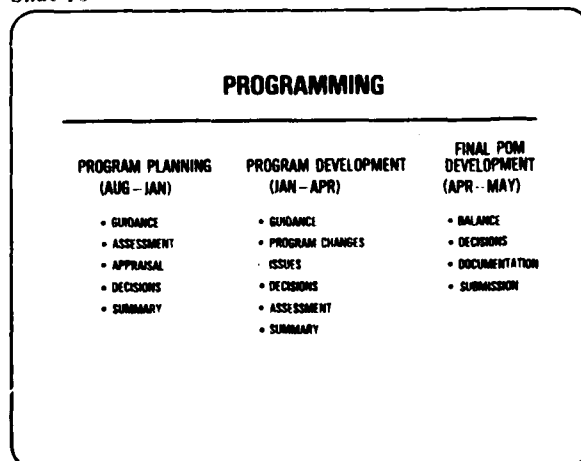
The whole process, then, comes down to achieving a consensus, an accommodation, among various groups of people who have different interests, meeting at each one of these intersections. The man who owns ASW is out there to do the best he can with ASW, and he has to convince the other individuals that the amount of resources in each one of those intersections is either the right amount or needs to be changed in some manner. The whole business of planning, programming, budgeting and, in fact, execution, revolves around those intersections. And this is the way we see it.

We break the programming process down into three separate categories. [SLIDE 16]

This process produces something called a "sponsor's program proposal" (which I will get into in a moment). But it is, if you will, the new Navy. We then go through another month or month-and-a-half of something that is called "the end game." During this time, we go through another intensive reassessment of what it is this new Navy does and does not do, and whether or not we are satisfied with it, or whether some more changes are necessary. And, finally, about thirty seconds before the final decision is made, we put it all together, we spend our minute-and-a-half to write down the documentation, and we send it off to OSD. [SLIDE 17]

The whole process is a circle, if you will, of guidance—looking at what it is that we have done, making decisions, executing those decisions, and going around in a circle again.

From November to January, these are the kinds of things that we are looking at. [SLIDE 18]

PROGRAMMING

PROGRAM PLANNING (AUG – JAN)	PROGRAM DEVELOPMENT (JAN – APR)	FINAL POM DEVELOPMENT (APR - MAY)
• GUIDANCE	• GUIDANCE	• BALANCE
• ASSESSMENT	• PROGRAM CHANGES	• DECISIONS
• APPRAISAL	• ISSUES	• DOCUMENTATION
• DECISIONS	• DECISIONS	• SUBMISSION
• SUMMARY	• ASSESSMENT	
	• SUMMARY	

POM DEVELOPMENT ITERATIVE CYCLE

GUIDANCE → ANALYSIS → DECISIONS

can add some perspectives to the things that go on, and the discussions around the table that very often, bring out an awful lot of thoughts and comments that the person doing the analysis probably did not think about.

At the same time that we are doing this, the Secretary of the Navy is chairing a forum called the "DON/POM Strategy Board." And he has a series of issues that he is interested in, mostly generated by his own staff. Some of the issues will have been generated as a result of program execution problems, things that have come up on the Hill, things that happened in the last PPBS cycle that he really is not comfortable with, and things that he thinks ought to be done differently. The CNO, the Commandant of the Marine Corps, Op-090 (our honest broker), and the Assistant Secretaries of the Navy participate in this forum.

So, from November to January, before we get the Fiscal Guidance, before we get the Defense Guidance, we are in the process of going through and looking at the Navy very carefully. **[SLIDE 19]**

PHASE I - PROGRAM PLANNING
AUGUST - JANUARY

In each of the individual warfare areas (antiair warfare, antisubmarine warfare, strike and amphibious warfare), we go through this analysis. It is briefed to the two-stars. From the two-star level, it is taken up to the three-stars. Now, there are two purposes in this. For one, we want to make sure that everybody understands the analysis, and everybody has, if you will, been brought up to speed on where we are right now. But, more important, it also gives everybody a chance to take a look at the analysis or the assessment from his own perspective and add his own insight into this process. For example, if we are looking at amphibious warfare, the submarine guys get in there, and they say "Hey, there are some things that you have to consider from our perspective if you are trying to go onto the beach." They look at it from the enemy submariner's point of view. And they

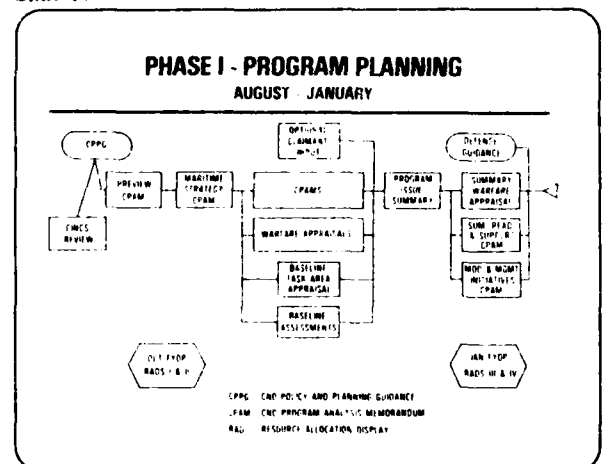That process includes about twenty-four separate presentations, just on the Navy side of the house. In each one of these things, again, the Marine Corps is playing very heavily. The question was asked yesterday, how the Marine Corps requirements for amphibious ships, for example, get included in the Navy process. One of the appraisals addresses amphibious warfare. Two people are intimately involved in the development of that analysis. One is a Navy captain, who has just come from being a squadron commander of an amphibious squadron, and the other is a Marine Corps colonel, who has had extensive experience from

the green-suit side of the house, in charging across the beach. They are the people who initially put the analysis together. They lean very heavily on the rest of the OpNav staff and the rest of the Marine Corps staff to make sure that we have looked at all of the alternatives, all of the considerations that both the Navy and Marine Corps think ought to be considered in going to this two-star, and then three-star, board.

This document is called the CNO's Programming and Fiscal Guidance. [SLIDE 20]

Slide 20

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│                                          │
│      CNO POLICY AND PLANNING GUIDANCE     │
│                  (CPPG)                   │
│      _____          │
│                                          │
│                                          │
│     ● MID SEPTEMBER                       │
│                                          │
│     ● CNO PLANNING OBJECTIVES & PRIORITIES │
│                                          │
│     ● INITIAL PROGRAMMING GUIDANCE        │
│                                          │
│     ● DIRECTS FOCUS OF CPAMs AND APPRAISALS│
│                                          │
│     ● INITIAL GUIDANCE FOR EPA DEVELOPMENT │
│                                          │
│                                          │
└─────────────────────────────────────────┘
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It is a memorandum of about 40 pages, signed by the CNO. All of the homework has been done, and the Defense Guidance and Fiscal Guidance have been received. This CNO memorandum tells the resource sponsors how to program or reprogram their resources. It is specific guidance in many respects. It will, for example, tell people what the CNO's objectives are with respect to readiness, what he wants to see for our mission-capable rate for aircraft, and in what order. It will address sustainability. It will address the way we are going to handle contracting-out. And it will address the priorities in strategic warfare or in antisubmarine warfare. It will address the things in particular that, as a result of this analysis, the CNO wants the resource sponsor to take a really hard look at as he develops his program.

For the month of February, the resource sponsors crawl into their holes, close the doors, and take a very hard look at all the things they have learned over the past year in the execution of their programs: the problems they have had on the Hill, the problems they have had in the PDM from last year's POM, things that have changed over the past year, the claimants' inputs, and the CNO's guidance.

They come back out, about the first of March, with something called a sponsor's program proposal. This is the way that Op-03, the surface warfare guy, or Op-05, the air warfare guy, or whoever, comes back to the CNO with an updated data base and says, "Boss, this is how I think my piece of the action ought to look, given all of the things that you have told me and given the amount of resources that I have."

We roll all of these sponsor program proposals back up into a large data base, and the assessment sponsors go back and take a look at this process again. They look at how antisubmarine warfare, or logistics, or personnel have changed as a result of the sponsor program proposals. Then, we go back to the two-star board and again address current issues.

From there, we go to the CNO's Executive Board—about the middle of April—and, finally, to the Secretary of the Navy, and we say, "This, sir—with the resources that we have and the guidance that you have given us— is the best way that we think, on balance, we can use the resources given to us."

Again, the DON/POM Strategy Board has been working in parallel. Many of the same issues have been brought up, and there is a cross-tracking back and forth because these boards have the same players. Admiral Metcalf, who chairs the PDRC, is also one of the principal players in the DON/POM Strategy Board. General Morgan, who runs the Marine Corps POM process, is a member of the PDRC and the DON/POM Strategy Board. So, we have this continual cross-talk. We look at ourselves as often as we can, from as many different perspectives as we can.

This, in a nutshell, is the first part of our homework. We get the information from the CinCs. We go through a maritime strategy analysis. Given the number of battle groups we have, given the number of airplanes we have, given the amount of sustainability, the amount of fuel we have in the water today, how would you fight the force? A lot of things come out of that, things that people outside the Navy would, perhaps, not have thought of. We go through all of the analysis and we end up with the CNO's Programming and Fiscal Guidance.

The preview CPAM is the first presentation in the POM process. [SLIDE 21]

Someone asked how the EPA plays. We play the EPA from last year into the beginning of this year's program. We take all of the things that have come out of the EPA, all of the insights of looking out fifteen years, and

what have you, and use that as one of the
starting points for reprogramming this year,
if that is necessary.

Slide 21

PREVIEW CPAM

- FIRST PRESENTATION OF POM PROCESS
- EXAMINES CURRENT NAVAL BALANCE AS DEFINED IN
  PREVIOUS POM AS ADJUSTED BY POM BUDGET ESTIMATE
- IDENTIFIES ISSUES FOR CONSIDERATION FROM:
  - EXTENDED PLANNING ANNEX
  - INVESTMENT PROFILES
  - WARFARE DEFICIENCIES
  - NATIONAL AND STRATEGIC REQUIREMENTS
- PRESENTED BY OP-96 TO PORC

Maritime strategy is how the CinCs think
we have to fight. [SLIDE 22]

Slide 22

MARITIME STRATEGY CPAM

- PROVIDES MARITIME STRATEGY ON WHICH WARFARE APPRAISALS
  ARE TO BE BASED
- PRESENTS WARTIME EMPLOYMENT OF NAVAL FORCES
  - AS REFLECTED IN
    - CINC WAR PLANS
    - DEFENSE GUIDANCE SCENARIO
- ATTEMPTS TO MEASURE PROGRAMMED WARFIGHTING
  CAPABILITIES
- PRESENTED TO PORC AND CEB BY OP-06 IN OCTOBER

The warfare appraisals and the areas in
those warfare appraisals are rolled up into
one summary warfare appraisal. [SLIDE 23]

We take all of the individual items and
consolidate them into one warfighting package.
[SLIDE 24]

One of the notes on these slides says
that it is fiscally constrained. It would be
very neat to go out and say, "Gee, I could
really win the war if I had 22 aircraft car-
riers or if I had this new, neat thing that

Slide 23

WARFARE APPRAISALS

- INTEGRATED WARFARE PERSPECTIVE
- ISSUE ORIENTED
- FISCALLY CONSTRAINED
- AREAS
  - STRATEGIC/TACNUC
  - ANTIAIR WARFARE (AAW)
  - ANTISUBMARINE WARFARE (ASW)
  - STRIKE/ANTISURFACE WARFARE (AS/UW)
  - MINING/MINE COUNTERMEASURES (MCM)
  - AMPHIBIOUS WARFARE
  - ELECTRONIC WARFARE (EW)
- COVER BROAD QUESTIONS
- IDENTIFY REQUIREMENTS
  - INCLUDING C³EW AS REQUIRED
- DEVELOP ALTERNATIVES
- SUGGEST PRIORITIES
- PRESENTED TO PORC BY OP-095

Slide 24

SUMMARY WARFARE APPRAISAL
(SWA)

- RECAPS SIX INDIVIDUAL APPRAISALS
- ISSUE-ORIENTED
- INTEGRATES PROGRAMS PRIORITIES AND
  DEFICIENCIES
- FISCALLY CONSTRAINED
- OP-095 WILL PRESENT TO CEB IN MID-JANUARY
  (AFTER PRESIDENT'S BUDGET SUBMISSION)

shoots down from space and zaps everybody,
but, unfortunately, that is not in the pro-
gram." We are not allowed to include in the
appraisals things that we do not own.

We also use the CPAMs to do the support
areas in the same amount of detail--readiness,
sustainability, and manpower. These analyses
address questions such as: "How do I modernize
the fleet?" Do I have the industrial capacity
to do it?" "Do I have the spare parts?" "Do I
have the R&D technology?" [SLIDE 25]

Every year we also do something called a
"Baseline Task Area Appraisal." [SLIDE 26]

Usually it is just one area; this year it
is two. This is where we do a complete bot-
toms-up approach. We are not just looking at
deltas. We are not just looking at the program

Slide 25

CNO PROGRAM ANALYSIS
MEMORANDUMS
(CPAMs)

- ASSESS OCTOBER FYDP
- ISSUE-ORIENTED
- DEVELOP PROGRAM & POLICY ISSUES/ALTERNATIVES
- FISCALLY CONSTRAINED
- AREAS ASSESSED
  - READINESS AND SUSTAINABILITY — OP-96
  - MANPOWER AND PERSONNEL — OP-96
  - FLEET SUPPORT & STRATEGIC MOBILITY — OP-96
  - RDT&E ACQUISITION — OP-098
- CPAMS PRESENTED TO PDRC
- FOLLOWING SUMMARY CPAMS TO BE PRESENTED TO CEB
  - SUMMARY READINESS AND SUPPORT CPAM — OP-96
  - MODERNIZATION AND MANAGEMENT INITIATIVES CPAM — OP-098

Slide 26

BASELINE TASK AREA APPRAISAL

- IN-DEPTH REVIEW OF SELECTED WARFARE OR SUPPORTING TASK AREA(S)

- POM-85 TOPICS: TRAINING (OP-96)
  NAVY STOCK FUND (OP-04)

- PDRC PRESENTATIONS

as it has changed over the years. We start from zero and build it all the way up. And we take only one--or in this case two--areas because it is a very difficult thing to do from a zero-based approach. The Navy stock fund is being done this year because of the problems we have had over the last year with the stock fund. One of the things we want to do with it this year is get some appreciation for how the stock fund is different from everything else that is going on in the Navy. Again, these are the details--the homework, if you will--that are provided to the individual sponsor that tell him, down to the line-item level, what is in his program that does or does not cut the mustard and how, from the assessment sponsor's point of view, it ought to be changed.

The claimants come in with their inputs as to what they think ought to be done, given their perspective. [SLIDE 27]

They are the guys who have to execute it. The sponsors will respond at the end of their sponsors' program proposals directly back to the claimants, to the fleet commanders, to the Material Command, to the Personnel Command, with the changes they have made in response to the claimants' input.

Finally, the guy who has all of the problems, the guy who has to develop this program, gets his day in court. The resource sponsor gets to come forward and say, "Gee, this is all very nice homework, and I understand all of your problems and all of the things you would like to do differently, but from my perspective there are also some problems and you ought to consider them as you are writing your guidance." This is the last presentation that is made before we start writing the CNO's guidance. [SLIDE 28]

Slide 27

OPTIONAL CLAIMANT INPUT

- EACH CLAIMANT CAN IDENTIFY FIVE PRIORITIZED MAJOR ISSUES FOR EACH RESOURCE SPONSOR
- OFFSETS MUST BE IDENTIFIED
- INPUTS TO BE BASED ON SPECIAL (NEW) CLAIMANT ORIENTED DATA BASE PRINTOUT (RAD II)
- INPUT DUE TO OP-90 NLT 24 NOV 1982
- SPONSORS MUST IDENTIFY ACTION TAKEN ON THESE (FIVE) CLAIMANT ISSUES IN SPONSOR PROGRAM PROPOSAL DOCUMENTS

Slide 28

PROGRAM ISSUES SUMMARY

- RESOURCE SPONSOR OPPORTUNITY TO PRESENT ISSUES TO BE CONSIDERED IN THE FORMULATION OF CPFG
- RESOURCE SPONSOR PRESENTATIONS TO PDRC
- EACH SPONSOR LIMITED TO FIVE MAJOR ISSUES
  - TO BE ACCOMPANIED BY ALTERNATIVES
- SCHEDULED FOR EARLY JANUARY

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We have all the homework done. We write the CNO's Programming and Fiscal Guidance. **[SLIDE 29]**

Slide 29

CNO PROGRAM AND FISCAL GUIDANCE
(CPFG)

● DOCUMENTS TENTATIVE CNO DECISIONS RESULTING FROM PLANNING PHASE (WARFARE APPRAISALS, CPAMS AND ASSESSMENTS)

● INCORPORATES DEFENSE GUIDANCE (DG)

● PROVIDES FISCAL CONTROLS

● PROVIDES MANPOWER CONTROLS

● PROVIDES GUIDANCE FOR PROGRAM DEVELOPMENT

● MEMORANDUM (POM SERIAL) SIGNED BY CNO

It goes to the sponsor (in the dotted box). **[SLIDE 30]**

He puts together his program. **[SLIDE 31]**

We update the data base at that point. We then send the results out to NavMat to reprice the changes in the procurement profiles or anything else that has happened. Each of the sponsors comes back again and takes a look at that new Navy. At the end, we go through a Program Evaluation and Review Summary, which is the forum for taking this new Navy to the CNO. **[SLIDE 32]**

That is the guts of the CNO's Programming and Fiscal Guidance and the kinds of things that are included in it.
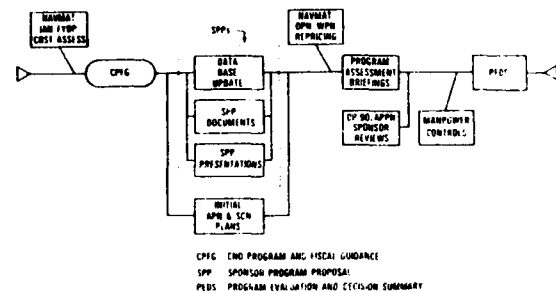
We include not just fiscal controls and guidance but also manpower controls, both officer and enlisted. We include civilians, reserves, contracting-out, etc. This is what the resource sponsors are doing when they go into their rooms and close the doors. These are the kinds of things they have to accommodate as they are building their programs. And, when they are all done, we go back and look at it. We try to get a handle on how this will improve the Navy, given all of the homework we have done. This is the process that we use to go back to the CNO and, finally, to the Secretary of the Navy.

Then the fun begins. This is called the "end game." **[SLIDE 33]**

Slide 30

PHASE II - PROGRAM DEVELOPMENT
JANUARY - APRIL

CPFG CNO PROGRAM AND FISCAL GUIDANCE
SPP SPONSOR PROGRAM PROPOSAL
PEDS PROGRAM EVALUATION AND DECISION SUMMARY

Slide 31

SPONSOR PROGRAM PROPOSALS
(SPPs)

● MUST ACCOMMODATE:
  ● TENTATIVE CNO DECISIONS AND PRIORITIES (CPFG)
  ● FISCAL AND MANPOWER CONTROLS
  ● REQUIRED FACT OF LIFE CHANGES
  ● PRICING CHANGES

● SHOULD ADDRESS NEEDS AND PRIORITIES OF:
  ● CLAIMANTS
  ● ASSESSMENT SPONSORS

● SPP MADE UP OF THREE PARTS
  ● DATA BASE UPDATE
    ● RESOURCE SPONSORS UPDATE POM DATA BASE
  ● SPONSOR PROGRAM PROPOSAL PRESENTATIONS
    ● RESOURCE SPONSOR BRIEFS TO POMC (MARCH)
    ● DESCRIBE SPONSORS PROGRAMS
  ● SPONSOR PROGRAM PROPOSAL DOCUMENTS (SPPDs)
    ● MADE UP OF HARD COPY OF SPP PRESENTATIONS
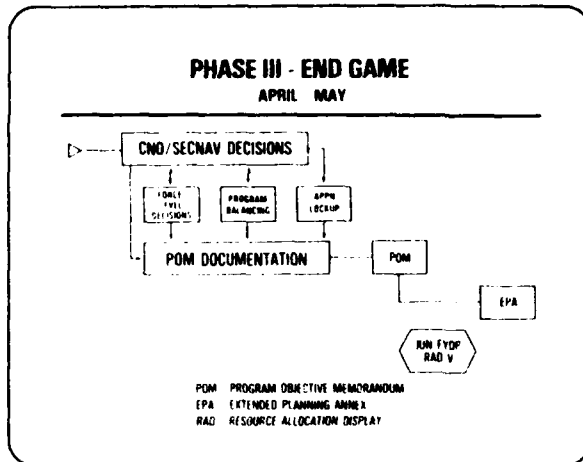   ● PLUS REPLIES TO CLAIMANT OPTIONAL INPUT

Slide 32

PROGRAM EVALUATION AND DECISION SUMMARY (PEDS)

● SUMMARIZES RESULTS OF DEVELOPMENT PHASE AND MAJOR UNRESOLVED ISSUES

● PRESENTED TO CEB FOR CNO APPROVAL/RESOULTION

● ALSO PRESENTED AS SPECIAL BRIEFING TO SECNAV

  ● SUMMARIZES CNO PROPOSED POM AND MAJOR ISSUES

CEB - CNO EXECUTIVE BOARD

PHASE III - END GAME
APRIL MAY

POM PROGRAM OBJECTIVE MEMORANDUM
EPA EXTENDED PLANNING ANNEX
RAD RESOURCE ALLOCATION DISPLAY

SUMMARY

- ANNUAL, CYCLIC DECISION-MAKING PROCESS
- SUBMITTED AS CHANGES TO THE FYDP
- CLAIMANT INPUT CONSIDERED
- SPONSORS PARTICIPATE
- 090 REFEREES
- 3 STAGES
    PROGRAM PLANNING
    PROGRAM DEVELOPMENT
    FINAL PROGRAM DEVELOPMENT (END GAME)

**RESULTS IN THE PROGRAM OBJECTIVES MEMORANDUM
(POM)**

This is the point when—having done all our homework—we finally come down to what the whole process really is about. It is, to a very large extent, a political process. I don't mean political in the wrong sense. It is a process of people talking to people. It is the business of "You have shown me all of the analysis, and you have given me all the details. I understand all of that. How do we interact with each other now? I understand all of the things you have said. Now, how do I put it all together? How do I make it whole?"

This is really the balancing process. In the two weeks from the middle of April to the first of May, we go through a very intensive look at program balance—again, from all of these different perspectives. There are a lot of people talking directly to the CNO. Admiral Metcalf will get on the order of a hundred calls a day asking, "Have you considered this?" "Is that really where you want it to be?"—that type of thing.

This is the Navy programming process. [SLIDE 34]

It is a process that makes changes at the margin; it is not a bottoms-up approach. We have tried to incorporate the claimants (the guys who have to execute, the guys who would have to fight) to the extent possible. And we have, over the years, gotten more and more claimant input into the process—not only on how we should fight, but also on what re- *sources* are needed to execute the Navy program.

It is a sponsor-oriented process. Op-090, Admiral Metcalf, does not "own" any resources at all. He is an honest broker. He has, in the

best sense, no particular penchant for any particular part of the Navy. And this is, in the final analysis, how we view ourselves.

Admiral Metcalf: I would like to take just a couple of minutes to summarize what our system is and what I consider to be the keystone. The first is this maritime strategy. A significant difference from the way the Army and the Air Force look at their programs is that the Navy is not scenario-driven. We do not know what our scenario is. Along with the Marine Corps, we are all over the place. And for years we have been grappling with, "Well how do you— given that you don't have a scenario—grapple with this problem?" We have come up with a method called the "Maritime Strategy Assess- ment," which is one of the first things you saw here in the initial part of our process (for August). It is something which has a great deal of input from both the CNO and the Secretary of the Navy. It provides a basis for measuring the appraisals. We measure them against this maritime strategy.

The second thing—which is key to the way we do business—is the idea of a resource sponsor (or a responsibility). This concept allows us to identify who is in charge, and whom to hold responsible, for program de- velopment; that is the system of the resource sponsor. This system has been with us for a number of years.

The third significant difference is this idea of the CPFG. That is how we move re- sources around. The question always comes up: "All right, your maritime strategy and the assessments you go through say that you're deficient in AAW. How do you move the re- sources from one place to another?"

Well, what we do in Op-090 (the office that I work for) is this: We get the CNO's guidance on this and then we, quite frankly, roughly balance the program. We move dollars from one part of the Navy to another as best we can, to balance the program to reflect his guidance. That is the way we change priorities. And that RAD, that rather complex matrix that Ray described to you, is how that gets reflected down to the people who have to do the work. So, we move dollars around, and that is how we shift the emphasis in the way we do business. Those are what I consider the three key elements in the way the Navy does its programming.

DISCUSSION

Question: Do you or Capt. Walsh move dollars with any particular controls between the Navy and Marine Corps?

Admiral Metcalf: They are split up with a formula. And we do it down to the last decimal point. Actually, General Morgan and I don't have a lot to do with it. We turn that over to some other people. Ray does it, along with a Marine Corps colonel. The two of those guys develop the split. General Morgan and I look at it, and, if it looks pretty good, we march off and try to sell it to our respective bosses. It's not a contentious point.

Ken asked how blue dollars are spent in the Marine Corps. I think that calls for a little explanation of what blue dollars are. Blue dollars are Navy dollars, which are spent by the Navy part of the Department of the Navy. Some of those dollars are spent on Marine Corps programs. That can very often be a difficult issue, if it is in the medical program, where the Navy provides all the medicines and medical treatment for the Marines—wherever they are—through the Bureau of Medicine and Surgery. So, it is a kind of hard issue. The Marines spend blue dollars to fly their airplanes around. We buy certain elements of Marine munitions. I think, really, the best answer is that we do it very carefully between the two of us. And, generally, once we decide how the programming and the budgeting go, we don't have a lot of problems. Is that a fair statement, General Morgan?

General Morgan: I think it is. As you clearly said, we use the green dollars to put our green programs together, and the balance is what we negotiate.

Admiral Metcalf: That is a very good way of saying it.

General Morgan: I might also say that the Marine Corps requirements are included in all of the analysis as well. In each one of the places where the Marines have an input into the computer, there is a Marine Corps officer as part of the Navy staff, generating the analysis separately, so that when all of this is done, before the CPFG, the Marine Corps requirements and the Marine Corps programs are incorporated into the Navy program.

Admiral Metcalf: The amphibious ships, the operation of those amphibious ships, and the procurement of them are done by the Navy—done by blue dollars. Green dollars, as General Morgan said yesterday, buy the kinds of things that are peculiar to the Marine Corps.

Question: The other day you objected to combining the POM and budget processes. I guess that the rationale was that you really didn't feel the POM had enough budget detail to be required in the budget. Yet, looking at the procedures you showed to build the POM. I just can't see you going into any more detail than that.

Admiral Metcalf: You are absolutely right. If you thought that I objected on the basis that we can't get the detail, you misunderstood. My own philosophy on whether we should have a POM and then a budget, and combine them all together, is simply the problem of the span of control of the decision-maker. I don't think that you can make rational decisions in the months of November and December, if all of these things move up together. The Secretary of Defense and his immediate senior staff ought to have as much time as we do in preparing this thing, so that they can sit around and cogitate about where they are going. That is my real problem with that concept.

Comment from the floor: Programming is simply done. The budget preparation and the budget execution are centralized. The claimants are the ones who put the budget together after the POM is submitted. And it just is not something that the OpNav staff is capable of doing. It should be done out in the field. Navy budgeting has been decentralized, probably since the first ship was deployed to the Barbary Coast. Mechanically, it would be an almost impossible task for the Navy to have budget preparation done at the same time as programming, mainly because of the organization of the Navy. If you decide to do it centrally, perhaps it can be done. As long as you have the type commanders out in Hawaii, the fleet commander out in Hawaii, and the CinCUSNavEur in London, all putting their budgets together on the basis of guidance from the OpNav staff,

in the detail needed to support the Congressional budget, it is almost impossible mechanically for the Navy to complete a credible combined review.

Admiral Metcalf: The gentleman who asked the question is Rear Admiral Stan Fine, who for years was one of the intellects behind the budgeting system we have right now in the Navy, and now one of our more thoughtful alumni.

Question: I still am not clear about the role of the fleet commander in this process. It seems that you do the programming for the resources, yet he is charged to carry out the use of those resources. And do you have a problem where he is charged to carry out the mission but may not have the resources that are decided on by the sponsor here at headquarters? I don't have a clear picture of that relationship yet. Is he just a tactician? Where does he come into resource management?

Admiral Metcalf: He manages the resources and execution. We give him the dollars. And it is really the operating dollars that the fleet commander deals with. It is one of the more difficult aspects of any system which is tracking from program to execution. The resource sponsor will say, "I would like to have this done, particularly in base operating support" (or what have you), and he will put that into the program. Those dollars are eventually given to fleet commanders (the "claimants"), and they execute that program.

The problem is that, very often, there is an enormous difference between what the resource sponsor wants and how it gets executed. And lots of that is the facts of life. I like to tell the OpNav staff that, except for the ships and airplanes, the Navy would be a good deal for us up here in Washington, because we get that omnipotent view that we know better about what is going on than the people who are going to execute.

Furthermore, we have some exalted view that we know more about what is going to happen—two or three times ahead of that execution point—than the guy in the field. So, there is that problem. In my judgment, I would not do away with that problem, because we are not omnipotent here, particularly in the operating accounts. For instance, how would you program for Lebanon right now? How would you plan for the enormous number of dollars that the Navy is expending, along with the Marine Corps, to maintain our presence in the eastern Mediterranean? It is not programmed. The claimants have got to spend those dollars, and we aren't being reimbursed for them. And, so, something is falling out. We aren't doing something.

How do you program for this enormous drug drill that we are going through in Florida? If we get ourselves in a situation where we are locked up and we in Washington say, "Damn it, that is how it is going to be," we are in trouble. And I view that, quite frankly, as the danger that is creeping in through our capabilities to keep track of what everybody is doing. You know, 1984 is not far away in the real-world sense. It is disturbing.

But so far, we have been able to keep a balance. We are getting a broad sense of how the executors of the programs are doing—which, I think, is proper. But we are trying to keep it in a rather large perspective, so that we follow the thrust and then see what they have not been able to do.

Now, where we are getting the claimants into the act is in the warfare areas. They are out there seeing what is happening. We are asking them more frequently what we need to do. And this is increasing, as we progress more and more into getting the CinCs into that act. But I think one of the most important things that has happened this past year in this Administration is getting the CinCs before the DRB. That has had an enormous effect, because what is happening is that the CinCs (at least, the Navy CinCs) have a very small program shop. They used to deal with the Controller, and what they would complain about were potholes in runways. When we would get a complaint from the CinCs, it was generally at that level. Since the CinCs have to go to the DRB and state their case and that case has to be in general program terms, they have started scrambling around and saying, "Where the hell are my programmers?"

The CinCs have yanked their staffs up out of the execution phase and have some people involved in programmatic issues—still the same five people. The CinCs themselves are starting to take a look at where we are going. The dialogue has increased by an order of magnitude between the field and OpNav.

Ray showed you this optional input from the CinCs. I've made it optional again because I am not sure. In the first place, we asked them for offsets. Quite frankly, they do not have the staff to do a good offset job. What we are really after is their intellectual view of what is happening. But, by the same token, we are trying to ask, "What are we doing?" "Where are the soft spots that you might want to go with?" We are trying to have the dialogue with each CinC at the highest level—not down with his staff. We are trying to involve the CinCs. And we have been successful. The pressure associated with the CinCs going to the DRB is what has done it. It is just fascinating.

Now they want more people in their program shop, and we are saying, "Wrong, you are doing very well with five. Keep it small, and let's think about problems; let's not pile the data up." That is what tends to happen if you get at this too much.

Dr. Chu: Ray described a parallel Secretary of the Navy process that runs alongside the review program. I wonder if you would consider, perhaps, combining those two functions.

Admiral Metcalf: The question is—if you recall that slide that Ray showed in which we had a CNO process and the Secretarial process—is: Would there be some merit in combining the two? No—in a word. The reason for that is that the way the Secretariat operates is, in large measure, a function of the personality of the Secretary.

The particular system we use at the Secretarial level works very well because of the way Secretary Lehman wants to operate. I have been in this business going on eleven years (in various capacities)—some say I learn very slowly and that is why I keep coming back—and I can't see other Secretaries working that way.

There is an enormous amount of interplay right now between the staffs, and I find myself going between the two at a high rate of speed. We try to keep the two on the same track. But I don't think it is a good idea any more than I think that OSD and the services should be doing their process together. You know, you can't do them entirely together. I would not institutionalize it because the next Secretary of the Navy is going to change it.

Question: I would add to that that it isn't so much what the Secretary of the Navy wants to do, it is more what the Secretary of Defense wants him to do. You heard yesterday the discussion about whether there ought to be service Secretaries and whether they are a contribution or an impediment. When we had Paul Nitze as Secretary years ago, we really got the idea of Op-96 from OPA, when Nitze had his own Op-96 function working for him. Op-96 fell into disuse. The Secretariat has, long since, been programming. They want to make decisions, whether they have the information to make them on or not.

We now have a dynamic Secretary who wants very much to help make decisions. We could get into a position of institutionalizing a system that combines Secretary's, and CNO's, and Commandant's phases. That system would probably fall into decay and disuse if future Secretaries worked more along the lines of the

Secretaries we have had in the past years and weren't either as influential or as interested in programming as the present Secretary.

Admiral Metcalf: I would like to answer the question that they didn't hear: "Are Secretaries obsolete?" (I guess that was the general thrust of it.) I emphatically don't think so. I think that an immediate civilian contact with OSD is absolutely essential in the system we use. So, I find that the Secretary function is a very useful one. It adds spice to the game sometimes, but that is what it is all about. And we don't always necessarily agree. However, any disagreements generally take place in the first year. I found that, sooner or later, you come to an accommodation. Everybody moves about halfway and you are charging off, generally in the right quadrant—or some quadrant.

Question: There appears to have been a great deal of improvement and increased emphasis on data base development and crosswalks. Are there indeed crosswalks with all of these different ways of dividing the money, and how do you handle the problem of allocation? I mean multipurpose systems such as ASW and AAW, for example. To what degree can you make macro kinds of decisions? Or does everything have to be on a very micro level? What about these crosswalks?

Admiral Metcalf: I will let Ray answer in a moment. But let me assure you we can do the crosswalk, and we can allocate. That allocation may be kind of arbitrary. For instance, last year we had a fiscal bogey of some $3 billion, which was taken out of the Navy, and we put out a CNO Program and Fiscal Guidance with $3 billion less in it. We allocated it.

We have had this capability now for ten years. In fact, it was invented when I was first in this business. We first invented what was called a resource allocation document, which merely was a matrix with the guys who had the responsibility for the dollars listed in the rows and the people who were responsible for looking at how they were being spent in the columns. We did it rather arbitrarily, based on our best knowledge of where resources ought to go. It isn't easy to do that because you have to make some judgments as to who deals with what dollars, but it is roughly right.

The CNO or the Secretary never sees this disaggregation. In other words, they never see the fine-grain detail. I try to keep it away from them. The fact is, it takes you a while to be able to read it. It is complex. We don't want them to read the details. We want the

senior decision-makers to look at the aggregates. But we find it very useful to get at the fine structure because we are making people responsible for what they are doing, and we are trying to get a better interface between the resource sponsors and the ways people are spending their money (particularly in the Material Command). Therefore, we have to shred it out. Ray, do you want to add to all of that?

Captain Walsh: One thing that I guess is true, the hardest thing to get at for a multipurpose force is how do I allocate multipurpose ships into a particular mission? The answer is: you don't. We deal with the missions, the crosswalks—if you will—and we have AAW, ASW, what-have-you. We also have a category called "Warships." Within that category are all the resources that go into the multipurpose warfare capability. When a mission sponsor, for example, is looking at ASW, he looks at all of the resources that are dedicated to ASW and then, within the "Warships" category, we can draw across those resources or perhaps make trade-offs or consider alternatives that deal in both packages. So, we have the capability of looking both ways.

We also have a capability of creating a new dictionary for doing a different allocation. For example, if you wanted to look at all the things that had anything to do with ASW, recognizing that there might be double-counting with the guy who is working with AAW, you could do that, and you would end up with a number that is larger than the sum of the whole Navy. But the data base is flexible enough to allow you to look at it any way you want.

Comment from the floor: I think there is another important part to that. If a ship is put in or taken out, the Op-90 people don't put in and take out the support. The job of the platform sponsor and resource sponsor is to provision that ship, provide for its overhauls, provide for its manpower, the training of the manpower, and the logistics. So, the responsibility for detailed programming is not at the Op-90 level. It is at the resource sponsor level.

Now, if he finds in the total that he has to give up something of a lower priority when there is not enough money in the pot, he may come back and make a pitch for a reallocation of resources. But it is not mechanistic, when he is told, "You do this and we will give you the resources." He is basically told, "Here's your bogey, and here is what we expect of you."

The resource sponsor is required to build a balanced program, with the Op-90 staff checking on the balance at the end, in the sense of knowing how to take further cuts or redistribute the resources. But Op-90 does not necessarily give him more resources for a specific purpose.

Question: If you take out a ship, you don't take out the support, too?

Captain Walsh: We don't take out ships. Let's take, for example, last year, when Op-03 was trying to meet his part of the bogey, and the decision was made to reduce the number of ships. When Op-03 did that, he took some of the money and some of the manpower that had been associated with some of those ships, and, rather than take it out, reapplied it to other places where he had shortfalls. The resource sponsor is the guy who does the detailed programming.

Comment from the floor: I would argue that the essence of the Navy system is, true, a decentralized system for management. In fact, you may remember the old NARM, where people would use a model to allocate resources. The NARM has not been used since 1978 or 1979. It is functionally dead. But the control mechanism is the CPFG. The resource sponsors, such as Op-05, are responsible for building a balanced program and having the assessment sponsors (like Op-01 for personnel or the logisticians in Op-04) say, "Yes, that is an adequately balanced program." But it is not a centrally manipulative program with central resource allocation models.

Captain Walsh: There is a lot of hearsay, there are a lot of—if you will—fistfights, particularly at the captain, the commander, and the three-star level, over each one of the intersections. The resource sponsor has to convince each one of the individual mission sponsors that what he has in his program is balanced against all his responsibilities.

Question: I would like to pursue that just a little more. Supposing that the warfare area assessment people say we need more in ASW, how do you decide which resource sponsor picks that up?

Captain Walsh: The assessment sponsor has got to come up with, not only how and what we would like to do, but also what kinds of things that he thinks he might consider giving up, if he had to give them up. When you roll it all together into the full summary warfare appraisal, the CNO may say, "Okay, I really need to do some more things in ASW, and I think where I want to do it is in submarines, or I want to put more emphasis into airborne

detection or over-the-horizon radars. At the same time, in the process of doing that, the CNO has to come up with a notion of what he is willing to give up and come back with guidance to the sponsors in broad enough detail so that they will be able to make those changes.

Admiral Metcalf: One of the real problems is how well we understand what the CNO wants to do when we lay out that initial fiscal guidance. If we are close, we are in pretty good shape. If we are off significantly, where either the CNO or the Secretary wants to beef up one area at the expense of another, we have real problems. As you can imagine, we then have to go back and "tax" the resource sponsors. And we do that rather well.

Question: That is why the CPFG comes out in the middle of the process. At the front end, when all the assessments are being done, each mission sponsor and warfare sponsor comes in and advocates his own cause and says why he needs a lot more money. Then Op-090 and Op-90, in cooperation with the CNO, decide which ones make the best case. So, if the question is: "How do you accommodate more ASW?" the CPFG is the document that allocates more ASW. Right or wrong?

Admiral Metcalf: Oh, yes, absolutely.

Captain Walsh: We also have time, after that allocation, to take a look at it and see whether the new product is better than the old one. If it is not or we still want to do some other things, we still have time to make changes.

Admiral Metcalf: The fact is that all you have to do is get hold of our CPFG, and you can write your issue papers, because that is how we are going to put our POM together. That is where the rubber meets the road in the Navy, as far as how we are going to respond—or not respond, as the case may be—to Defense Guidance is concerned. Defense Guidance, in recent years, has been an unexecutable document in the fiscal sense. We have to decide to which parts, and to what extent, we are going to respond. That is how we do it. And that is how we move resources back and forth to take care of those problems.

So it is a very, very important document. It comes out after we get the Fiscal Guidance from OSD. We have had it at times as late as the first of March because OSD and OMB did not do their thing on time. When that happens, generally, the whole process backs up because that is where we start off. However, what we do in a case like that, where OSD cannot seem to make up its mind, is we get our traplines

out, we go out and figure out what our approximate guidance is going to be, we get out ahead of Milt Margolis and company, and we make a guess about what it is going to be. Very often, we have put POMs together based on what we think Fiscal Guidance is going to be. We may not know what it is going to be, but we can't let the process go because our feeling is that the senior decision-makers (the CNO and the Secretary) rate at least as much time to cogitate over what is going on as we guys down in the trenches do. And that is the philosophical problem I've got with combining budgeting and programming, other than the mechanical problems which Admiral Fine discussed.

Question: The Marines talked about putting together a core program, and their presentation might be, to a lot of us, characterized as incremental from the past programs. Is there a notion of a core Navy program and, if so, is that identifiable in the data base?

Admiral Metcalf: It is the FYDP. The October FYDP is, in a sense, our core program. We don't use the same as the Marine Corps. But the FYDP represents what we have to begin with and therefore is fundamentally the core. For the Navy, I think that is the nearest thing to a core program.

Question: The concept of a core, then, is quite the same as the minimum possible, the minimum essential?

Admiral Metcalf: No. We have thought about that, but we don't say specifically, "This is the core." That is an interesting concept. It is a pessimistic concept, and we—with our current Secretary of the Navy—are not pessimistic. But, the way the Marines use it, it isn't pessimistic, let me assure you. It is an "acti''st"—let's go out and see what we can get out of the blue boys—concept, you know. Besides, we love it. Fair statement, Tom?

General Morgan: Yes, a fair statement.

Question: You asked the Air Force about how they are going to make rapid adjustments, and they said they aren't planning to make rapid adjustments. And I wonder how you would respond to your own question—how you think you are structured to make that kind of rapid adjustment.

Admiral Metcalf: The question for the Air Force really was based on "How do you go out and tell the Air Force organization that we are looking at a particular level because we are expecting Fiscal Guidance at a lower level?" We do that every year. What we try to

do is generate a certain number of dollars around the margin. This year we are looking at it saying "It may be more real than it has in past years, but we don't know." And, so, the issue is how you generate dollars on the margin. That is the real question. You don't have to be trying to guess what the economy is going to do, but it is a question of how you do it. And we do it--as I mentioned--through this idea of fiscal guidance, the CPFG. We also do it in these appraisals. These appraisals are fiscally bound. One of the things we have done this year is we have said, "We have a new CNO coming in. He may not like the way you are going. How would you do it at a lower level in these various mission areas?"--in other words, trying to get a band. What is the band of uncertainty in the program?

We try to get some idea of what would happen due to inflation and other kinds of things. Last year, for example, in the Navy, we took a billion-dollar hit because of inflation indices. That was entirely unexpected and was over and above Fiscal Guidance. And we had to adjust to that. We had to tell our system how to do it. And the way we do it, is we try to get up front with it. That is really the answer. (I was just trying to figure out how the Air Force would do something like that because I don't think you can wait until Fiscal Guidance comes out. (At least, we don't

think you can.) You have got to start early, thinking the unthinkable.

Comment from the floor: There may be change in the FY-1984 program before you finish developing the FY-1985 POM.

Admiral Metcalf: Of course, a hell of a change. So, you have to be ready to go. And this year seems to be more uncertain than others. That is the separation between the way the CNO side of the house would operate and the Secretariat side of the house. We have the responsibility to put a balanced program together. And you can't stick your head in the sand and wait until a truck runs you down. You have got to start thinking about it ahead of time. Now, how do you do that and maintain your loyalty to support the President's budget, support the FYDP? That is the program. And that is the delicate balance we have to maintain. We do it through our resource sponsor systems, telling them they have to have balanced appraisals and giving them arbitrary bogeys: "If we went down to this level, how would you appraise our capabilities? What could we do to make ourselves better?"

We are going through that process right now. It is a normal process. We do it every year. There seems to be more urgency this year than others, but that is from the pragmatic side of the house. Programmers have to be pragmatic to hold off the woodpeckers.

EFFICIENCY IN MILITARY DECISIONS: THE FRUSTRATING CASE OF SUPPORT PROGRAMMING*

by

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INTRODUCTION

The problem of how to allocate resources in the Department of Defense has been a subject of intense debate since the Second World War. In their landmark book, The Economics of Defense in the Nuclear Age, Hitch and McKean argue that increased efficiency in the allocation of defense resources will result if decision makers recognize and are aware "that military decisions, whether they specifically involve budget allocations or not, are in one of their important aspects economic decisions, and that unless the right questions are asked, the appropriate alternatives selected for comparison, and an economic criterion used for choosing the most efficient, military power and national security will suffer."**

[SLIDE 1] It is the thesis of this paper that as far as logistics and other support programs are concerned the resources allocation system does not ask the right questions or provide decision makers with the information they need to make "efficient decisions." In the following pages we will review the development of support programming from 1961 to the present and suggest an alternative way of asking, "How much support is enough?" These major points will be made:

1. Over the past two decades, the Department of Defense (DoD) has been more concerned with the identification and allocation of support costs than the development of support alternatives or the efficient programming of support resources. Historically, the Planning, Programming, and Budgeting System (PPBS) has emphasized weapon system procurement rather than the efficient management of DoD in a projected wartime environment.

Slide 1

> ## SUPPORT PROGRAMMING –
> ## A HISTORICAL PERSPECTIVE

2. Support programming in the DoD has not adequately responded to two fundamental changes in the PPB System which date from the late 1960s: fiscal constraints and participatory or decentralized programming.

3. Traditional support "costing" techniques such as the cost factors handbook, manpower standards, and requirements modeling do not provide programmers with the information needed to make informed decisions in the resource allocation system.

4. In order to insure that adequate information on costs and benefits is being presented to decision makers at all levels, the Office of the Secretary of Defense (OSD) and Service programming staffs must develop appropriate programming methodologies which provide information about the marginal costs and marginal benefits of support programs.

SUPPORT PROGRAMMING IN A CHANGING DEFENSE ENVIRONMENT

Over the past twenty years, concerns about support programs have changed significantly, and yet techniques for programming support have remained largely changed and inadequate.*

Support Programming: 1961-1969

During the 1960s, considerations of support were not integrated into the PPBS process for resource allocation. Support was considered an adjunct to life-cycle costing as part of the weapon system procurement process. Attempts were made to provide a better single estimate of the resources "required" to support a given force unit, such as a B-52 wing, and to minimize the required support in the design of new weapon systems. However, questions of alternative support programs and the adequacy of support fundings were not a subject given programmatic consideration.

[SLIDE 2] Support programming started in the 1960s with Robert McNamara, his perception of management problems in the operation of OSD and the way he approached the position of Secretary of Defense. During the 1950s there was no unified system for planning and budgeting within the DoD. The President decided on an overall level of defense spending for the forthcoming budget, the Secretary of Defense allocated this among the Services, and each Service prepared its own budget. Late in the budget cycle the Services submitted their budgets to the Secretary of Defense who tried to balance their requests and construct a unified and consistent budget.

The perceived faults of this approach to defense decision making are well documented. Hitch saw this approach as a "rather inefficient way to go about preparing the defense budget...--the end result was not balanced effective military forces."* Enthoven noted that in the 1950s the "result of requirements planning done without explicit regard to cost, and budget planning done without explicit regard to needs...produce(d) imbalances and inconsistencies."**

When President Kennedy took office, he instructed McNamara to develop the forces necessary to meet military requirements without regard to arbitrary budget ceiling and to procure and operate the force at the lowest possible cost. McNamara's emphasis on weapon system procurement and force structure management was explained by Hitch as follows:

> Secretary McNamara made it known that he wanted to manage the defense effort in terms of meaningful program entities or

* Charles J. Hitch, Decision Making for Defense, (Berkeley: University of California Press, 1965), p. 24.

** Alain C. Enthoven and K. Wayne Smith, How Much Is Enough? (New York: Harper and Row, Publishers, 1971), p. 15.

outputs like the B-52 force. He would have to know in order to optimize the allocation of resources the cost of, for example, a B-52 wing--not only the cost of equipping the wing, but also the cost of manning and operating it for its lifetime. ...Only then would he be in a position to assess the cost and effectiveness of a B-52 wing as compared with other systems designed to perform the same or similar missions.*

The emphasis on weapon systems, force structure, and life cycle costs was reflected in the structure of the FYDP, and the management of the programming system by the Systems Analysis Office.

Slide 2

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                    PPBS IN THE 1960s

    THE NATURE OF PPBS
        • RESPONSE TO DEFENSE PLANNING AND BUDGETING
          IN THE 1950
        • McNAMARA'S EMPHASIS
            – WEAPONS SYSTEM PROCUREMENT
            – FORCE STRUCTURE

    THE MANAGEMENT OF PPBS
        • DESIGN OF THE FYDP
        • SYSTEMS ANALYSIS OFFICE
```

The Five Year Defense Plan (FYDP)

In response to the problems of the 1950s, McNamara and Hitch developed programming as a bridge between planning and budgeting and created a new management information system-- the Five-Year Defense Plan--to show the total cost--development, investment, and operating-- of their force program elements. The FYDP and its program element structure broke up support programs in order to allocate support to individual force elements. The designers of the system argued that,

> If requirements for support follow directly from the number of combat units, then an independent decision is not needed to establish those requirements. Support units of this type should therefore not be defined as separate program

* Hitch, op cit. pp. 27-28.

elements; instead the resources required can be allocated directly to program elements according to the best available estimates of the relationship existing between combat forces and support requirements.* [SLIDE 3]

Slide 3

    STRUCTURE OF THE FYDP

    • PHILOSOPHY
        "IF REQUIREMENTS FOR SUPPORT FOLLOW DIRECTLY FROM THE NUMBER OF COMBAT UNITS, THEN AN INDEPENDENT DECISION IS NOT NEEDED TO ESTABLISH REQUIREMENTS"
        "SUPPORT UNITS SHOULD NOT BE DEFINED AS SEPARATE PROGRAM ELEMENTS"

    • PROBLEMS
        NO INTEGRATED VIEW OF LOGISTICS
        LOGISTICS STRUCTURE AND POLICY CONSTANT
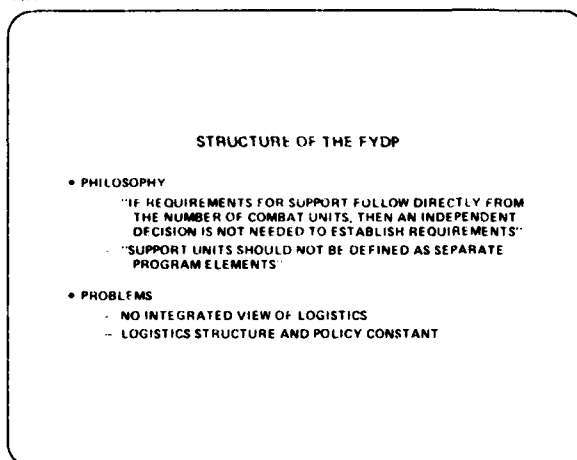
In fact, the original Program VII—the General Support program—was defined by Hitch as "the 'all other' program containing all the activities not readily allocable to mission forces or weapon systems." It seems that those who argued for explicit consideration of costs, benefits, and alternatives in the choice of weapons systems did not extend that view to the choice of support systems.

The effect of viewing support as an adjunct to weapon system decisions was to deprive senior defense decision-makers of the information necessary to make decisions on the size and organization of defense support programs. Such items as squadron maintenance, replenishment spares, and POL were recorded as direct costs in primary program elements like "B-52" or "F-15." Depot maintenance and control supply services are considered indirect costs and recorded in Program VII. Disaggregating logistics into direct support for individual weapon systems and indirect support does not provide an integrated view of logistics as a whole system. For example, in planning maintenance and supply support, the assignment of work to different levels of maintenance—organizational, intermediate, or depot—will greatly impact the total cost effectiveness of the weapon system program; yet
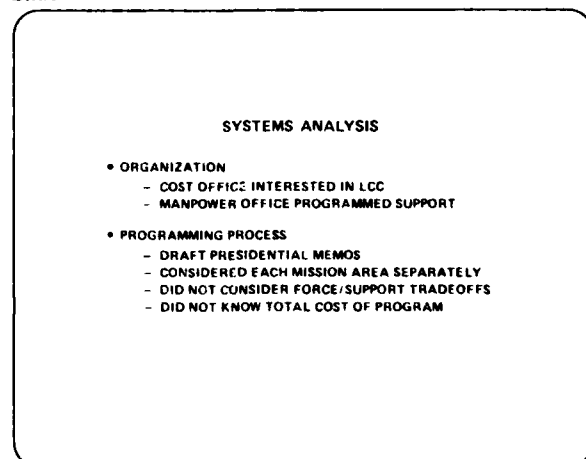
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* Department of Defense Study Report, "Programming System for the Office of the Secretary of Defense," June 25, 1962.

the formal structure of the FYDP does not foster such program considerations of alternative support systems.

The Systems Analysis Office

The emphasis on weapon system/force planning was also reflected in the structure and work of the Systems Analysis Office. Organizationally there was no group of analysts charged with examining support options in the same way that weapon systems were being examined.* Consideration of support was left to the cost office as part of their considerations of life-cycle costs, or to the manpower requirements office. [SLIDE 4]

Slide 4

    SYSTEMS ANALYSIS

    • ORGANIZATION
        COST OFFICE INTERESTED IN LCC
        MANPOWER OFFICE PROGRAMMED SUPPORT

    • PROGRAMMING PROCESS
        DRAFT PRESIDENTIAL MEMOS
        CONSIDERED EACH MISSION AREA SEPARATELY
        DID NOT CONSIDER FORCE/SUPPORT TRADEOFFS
        DID NOT KNOW TOTAL COST OF PROGRAM

The Draft Presidential Memorandum (DPM) programming process—the focus of work in the System Analysis Office—reflected the weapon system emphasis. In 1968, there were sixteen

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* Binkin has argued that "McNamara's analysts focused on force level and modernization issues (because) each...had hundreds of millions of dollars hanging in the balance and was closely related to major policy decisions. Both the intellectual challenge and the possibility of large swings in defense spending were strong motivations. In contrast, there were no central advocates for support spending, and there was reason to believe that, if the forces were shaped properly, the budget process would serve to keep support spending in line...in contrast to force and modernization issues, support is a complex conglomeration of thousands of small diversified activities and its analysis is much more difficult." Martin Binkin, Support Costs in the Defense Budget, (Washington: The Brookings Institution, 1972), p. 8.

DPMs produced. Only one--the Logistics Guidance for General-Purpose Forces--dealt with support, and that was limited to consideration of war reserve material levels. Consideration of the efficiency of the support establishment and support/force mix was not part of the programming process.

The intellectual neglect of support issues during the 1960s was so complete that even in retrospect Enthoven could see support only as a cost item to be captured as part of a weapon system procurement process. How Much Is Enough? is an account of his service in the Pentagon; he notes that "the management of the vast (support) outlays has not been adequately integrated with top-management decisions or the overall planning process of the Department." He argues, however, that "these defects ...create two kinds of problems. First, the top management of the Department cannot make good decisions when the costs, other than procurement, are unknown...(and) second, incentives for efficient operations in the field are badly distorted (since commanders cannot control) such major items as military personnel, equipment, and real estate, which are given to them in kind."* Enthoven does not argue for an explicit consideration of alternative support programs.

The effect of neglecting support during the programming process was to undermine the effectiveness of the PPBS. If the 1950s were marked by unrealistic planning and inconsistent, disjointed budgets, the same can be said of the DPM-programming system of the 1960s. Enthoven notes that during the 1950s, "the JCS regularly recommended forces costing roughly 25 to 35 percent more than the final budget the President believes the nation should provide."** A similar situation existed in the 1960s. The Systems Analysis staff did not know in advance the size of the budget needed to implement all of the programs approved by the Secretary of Defense. Since the DPMs were prepared by mission area and did not cover the entire defense program, one senior Systems Analysis official noted in 1969 that, "the lack of overall, explicit financial guidance led to unrealistically expensive defense programs which had to be cut drastically during the annual budget review in the last few months of the year.... By necessity, these cuts often had to be made without adequate regard for their long-range impact on military capability and cost."*** [SLIDE 5]

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* Enthoven, op.cit., pp. 316-317.
** Enthoven, op.cit., p. 38.
*** Charles Rossotti, "The PPBS and Systems Analysis in the U.S. DoD." Unpublished speech before the Japan Defense Society, November 6, 1969.

Slide 5

PROBLEMS WITH PPBS IN THE 1960s

● PROGRAMMING PROCESS DID NOT ADDRESS
    – 1/3 OF DoD TOA
    – 1/2 OF DoD MANPOWER

● MAJOR WEAPON/FORCE CUTS IN THE BUDGET

Reforming The PPBS: 1969

Efforts to reform the PPBS in 1969 should have had a major effect on the way support was programmed. The three primary reforms were:

● A revitalized National Security Council and its explicit review of our world-wide national security objectives and policies in the context of alternative strategies, force structure, and budgets. Since support accounted, in 1969, for 30 percent of DoD's TOA and 50 percent of its manpower, it could no longer be ignored.

● The issuance by the Secretary of Defense to the services of explicit fiscal guidance together with strategic and programming guidance. The combination of fiscal and program guidance was designed to get the services to become cost-conscious and search out tradeoffs which would improve capability within a given budget level.

● A lessening of the influence of the Systems Analysis Office and a return to decentralized or "participatory management" where the services were responsible for the development of their own program.

[SLIDE 6] The summer of 1969 was the last time that force planning memoranda were produced by Systems Analysis and the first time an attempt was made to "size" the entire defense program. The Manpower and General Support Major Policy Memorandum tried to provide out-year projections of support requirements

consistent with the forces proposed in the force planning memorandum. This was accomplished by building resource allocation models based upon the "existing" support system.* A balanced logistics program was implicitly defined in relation to a specific point in time and the average (sometimes marginal) historic cost per weapon system as reported by the services in their cost factors handbooks.

Slide 6

REFORMING PPBS: 1969

MAJOR REFORMS

- NSC STUDIES OF ALTERNATIVE.
  - STRATEGIES
  - FORCE STRUCTURE
  - BUDGETS

- GUIDANCE
  - FISCAL
  - PROGRAM

- PARTICIPATORY MANAGEMENT

[SLIDE 7] A support program was "in balance" if it provided the same relative level of support in the out years as existed in the base year.

Slide 7

MANPOWER AND GENERAL SUPPORT MAJOR
POLICY MEMORANDUM: 1969

- FIRST ATTEMPT TO BUILD TOTAL DEFENSE PROGRAM
- GOAL WAS A BALANCED PROGRAM
- BALANCE - SAME RELATIVE LEVEL AS BASE YEAR
- REQUIREMENTS NOT RELEVANT TO PROGRAMMING
- PROGRAMMING QUESTIONS (BINKIN)
  - WHAT ARE THESE RESOURCES BUYING?
  - WHAT DO THEY CONTRIBUTE?
- PROGRAMMING CAPABILITY
  - ANALYTICAL MODELS DO NOT EXIST

This cost "factor" approach to support programming, while a step forward for the Systems Analysis staff, was not consistent with the new emphasis on fiscal guidance and participatory management. In 1970, under the pressure of substantial budget reductions, the factor approach to balance gave way to a search for "sufficiency." This recognized that projected existing level of support obtained by applying the services' support cost factors to their recommended programs was not necessarily optimal and that a relative reduction in support was a viable alternative to reducing combat forces in a fixed or reduced budget environment. Specifically, the Air Force during the preparation of their FY-1971 program stated a requirement for $1,413 million for depot maintenance but chose to allocate only $981 million. Unfortunately, no one—Systems Analysis or the Air Force—could state the consequence of not fully funding the Air Force's "requirements."

Support Programming in the 1970s

During the 1970s there was heightened awareness of the critical role support plays in determining the effectiveness of our forces and the shape of our defense budget. Given increases in support costs and relatively fixed budgets, defense programmers had to (1) reduce the number of force units and/or their activity level, (2) cut modernization programs and (3) reduce the level of support. The fundamental support programming question stated by Binkin in 1972 was, "What are these resources buying, and what does its output contribute to national security?" His basic conclusion: "The analytical models needed to begin to answer these questions have not been developed."*

The Defense Resource Management Study

The way support was programmed was a major concern of the Defense Resource Management Study (DRMS). [SLIDE 8] In 1977 the Secretary of Defense, in response to a request by the President, commissioned the DRMS to conduct a searching organizational review into several resource management issues."** The study group argued, as I have above, that the original PPBS was weapons-oriented and that it was "not designed to be systematic about operations and support costs."*** Their review of support programming in the 1970s

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* This section is based on my paper, "Logistics—Its Planning, Programming, and Budgeting in the Office of the Secretary of Defense 1968-1970," P-4881, The Rand Corporation, August 1972.
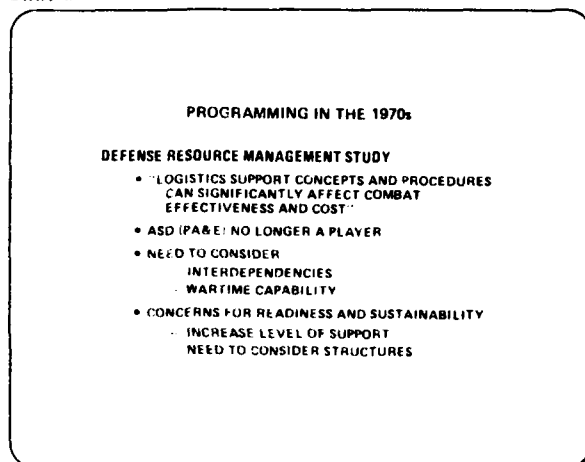
* Binkin, op. cit., p. 9.
** Donald B. Rice, Defense Resource Management Study: Final Report, (Washington: U.S. Government Printing Office, 1979), p. v.
*** Rice, op.cit, p. 2.

highlighted two important problems: the inadequacies of the current FYDP structure and the lack of consideration of alternative support structures.

Slide 8

PROGRAMMING IN THE 1970s

DEFENSE RESOURCE MANAGEMENT STUDY

- "LOGISTICS SUPPORT CONCEPTS AND PROCEDURES CAN SIGNIFICANTLY AFFECT COMBAT EFFECTIVENESS AND COST"
- ASD (PA&E) NO LONGER A PLAYER
- NEED TO CONSIDER
  INTERDEPENDENCIES
  WARTIME CAPABILITY
- CONCERNS FOR READINESS AND SUSTAINABILITY
  INCREASE LEVEL OF SUPPORT
  NEED TO CONSIDER STRUCTURES

As noted above, the FYDP was constructed with a strong weapons-system orientation. The original designers saw support as a cost item that was to be allocated to major force program elements. Project PRIME and later the Visibility and Management of Operating and Support Costs (VAMOSC) cost reporting systems were attempts to provide better cost allocations. Early attempts to build a relevant support classification system using FYDP program elements were not successful due to the very nature of the FYDP. The DRMS recommended that "the FYDP structure should be redesigned through a major effort to create a structure based on data elements that permit comparable and consistent treatment of support and force activities."*

The DRMS were also critical of the lack of consideration of support alternatives. They noted:

- "The organization of support activities and the distribution of expenditures across support activities will affect the amount of combat capability that can be obtained for any given funding level. Thus, we must also be concerned with the efficiency of support delivery processes."**

- "Past studies of maintenance and supply support have indicated that changes in logistics support concepts and procedures can significantly affect combat effectiveness and cost."*

- The Office of the Assistant Secretary of Defense (Program Analysis and Evaluation)—formerly the Systems Analysis Office—had lost its ability to analyze manpower or logistics alternatives.

- Review of individual logistics functions, such as depot maintenance, have concentrated on peacetime efficiencies rather than on considering the interdependence of logistics functions and their contribution to wartime combat capability.

- The emphasis in the early 1970s on the "tooth-to-tail" ratio and "other simplistic measures obscures the synergistic relationship between combat forces and support. The results of these reviews have sometimes reduced combat flexibility and effectiveness out of proportion to any cost savings."

- "More recently, the focus...has changed to reflect the Department's increased concern with readiness and sustainability. Their recommendations, however, have sought to increase effectiveness primarily by <u>increasing the level of resource input to the current support structure</u>.... Alternatives which involve modifying these structures have received comparatively little attention."**

Support Programming in the 1980s

Improving peacetime material readiness and sustainability has become the major emphasis of defense programming in the 1980s. While this emphasis is pleasing to logisticians, current programming procedures in the Services and OSD still do not ask the fundamental support programming question, "What are these resources buying, and what does its output contribute to national security?"

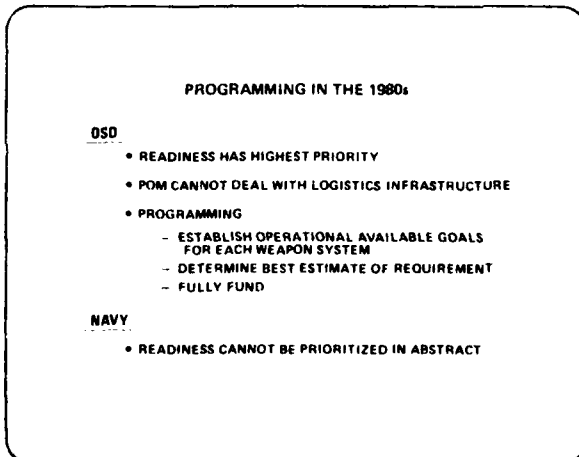* Rice, op.cit., p. 25.
** Rice, op. cit., p. 43.

* Donald B. Rice, *Defense Resource Management Study: Case Studies of Logistics Support Alternatives*, (Washington: U.S. Government Printing Office, 1979) p. v.
** Rice: Final report, op.cit., p. 43.

In 1960, Hitch and McKean argued that "it cannot be stated too frequently or emphasized enough that economic choice is a way of looking at problems and does not necessarily depend upon the use of any analytic aids or computational devices."* In fact, this argument is just as valid in the 1980s. Hitch and McKean suggested that the antithesis of an economic approach to resource allocation was the "requirements" and "priorities" approaches.** Unfortunately, these approaches continue to dominate support programming.

The current priority approach is reflected in the FY 1983 Defense Report to the Congress, which states, "action which increases the readiness of our current forces to requisite levels must take precedence over modernization as expansion of our forces. Furthermore, actions which assure acceptable combat sustainability of our forces have nearly as high a priority as necessary readiness improvements."*** [SLIDE 9]

Slide 9

PROGRAMMING IN THE 1980s

OSD
 • READINESS HAS HIGHEST PRIORITY
 • POM CANNOT DEAL WITH LOGISTICS INFRASTRUCTURE
 • PROGRAMMING
   – ESTABLISH OPERATIONAL AVAILABLE GOALS
     FOR EACH WEAPON SYSTEM
   – DETERMINE BEST ESTIMATE OF REQUIREMENT
   – FULLY FUND

NAVY
 • READINESS CANNOT BE PRIORITIZED IN ABSTRACT

The most comprehensive statement of the requirement approach can be found in the POM-84 Readiness and Other Logistics Issue Book. The stated procedures see logistics programming as (a) establishing operational availability goals for each weapons systems/ equipment, (b) determining the "best estimate"

of the resources required to attain and maintain these goals, and (c) fully funding the requirement.*

The current requirements and priority approaches reflect not only a lack of explicit consideration of costs and benefits, but also alternatives. The POM-84 Issue Book notes that "material readiness depends on (six factors):

 • the inherent reliability and maintainability of each system/equipment.

 • the inherent reliability, fault solution capability, and availability of test and diagnostic equipment.

 • sufficient numbers of logistics personnel, possessing requisite training and experience, in combat and deployable support units.

 • the capacity and responsiveness of the logistics infrastructure.

 • the availability of spare components and parts.

 • the resources provided to repair, overhaul, and maintain end items, components, and munitions."**

However, it is asserted that "only the latter two factors can be directly affected wholly by...action during the POM review...(and therefore senior defense decision makers should) focus principally on the last two aspects of the Services program." In other words, such things as "the capacity and responsiveness of the logistics infrastructure" should not be the "principal focus" of the resource allocation system.** This seems particularly unfortunate, since a recent study by the General Accounting Office reported that

* Hitch and McKean, op.cit., p. 120.
** Hitch and McKean, op.cit., pp. 120-123.
*** Executive Secretary to the Defense Resources Board, DoD Program Review: FY 84-88, Readiness and Other Logistics, Issue Book Five, June 25, 1982, p. 3.

* Issue Book Five, op.cit., p. 4. The GAO recently noted, however, that "a number of systemic problems were impairing the Services' requirements determination process for supplies and spare parts. ...Because item requirements are a constantly 'moving target,' the Air Force and Navy cannot be certain of which aircraft spares and repair parts to buy until months after their initial budget submissions." General Accounting Office, Requirements and Production Capabilities Are Uncertain for Some Air Force, Navy, and Marine Corps Aircraft Spares and Repair Pairs. PLRD-82-77, July 22, 1982, pp. 5-6.
** Issue Book Five, op.cit., p. 4.

"many aircraft operational readiness problems were caused by maintenance problems and other reasons...rather than a lack of sufficient funds."*

The lack of consideration of alternative concerning support programs is not new. In 1972, Binkin stated that he wrote his book, Support Costs in the Defense Budget: The Submerged One-Third, in order "to increase public awareness that alternative support programs exist." He argues that:

- "Alternative support programs and their controlling policies should be examined by the executive branch and the Congress. Greater efficiency in the support establishment could release funds either to buy additional defense capability at a constant budget level or to maintain a constant capability at a lower budget level.

- "It is difficult to examine alternative support programs because bureaucratic, political, economic, and timing constraints tend to silence debate over support issues and spending levels.

- "To overcome these constraining influences, the executive branch should bring support programs under existing multiyear planning procedures, and the Congress should explicitly control the allocation of funds to support functions."**

The Legacy: Twenty Years of Support Programming

Over the past two decades several schools of thought have developed about how support should be programmed has developed. The dominant school views support programming as determining the required support associated with each force unit. This thinking has dominated the structure of the FYDP, the design of such accounting systems as PRIME*** and VAMOSC**** and the work of such groups as the Cost Analysis Improvement Group (CAIG)*****

* GAO, op.cit., p. 1.
** Binkin, op.cit., pp. 3-4.
*** Enthoven, op.cit., p. 317.
**** Alvin M. Frager, "The VAMOSC Connection: Improving Operating and Support Costing," Concepts, Spring 1981, Volume 4, No. 2, p. 95.
***** Milton A. Margolis, "Improving Cost Estimating in the Department of Defense," Concepts, Spring, 1981, Vol. 4, No. 2, p. 7.

and OP-96D.* It is supported by those who set arbitrary operational readiness goals without regard to threat or risk, and try to "fully" fund the resulting requirement.* It is pervasive in major force effectiveness studies which routinely neglect the impact of support on weapon system effectiveness.** [SLIDE 10] This school found its highest expression in such programming models as the Navy Resource Model and the Army Dollar Resource Allocation Model.***

Slide 10

THE LEGACY

ALTERNATIVE VIEWS OF SUPPORT PROGRAMMING
- REQUIREMENTS
  - WEAPONS SYSTEMS STUDIES
  - LCC
  - NAVY RESOURCE MODEL (NARM)
  - LOGISTICS REQUIREMENTS MODELS
- LOGISTICS MANAGEMENT
  - STRUCTURAL
  - POLICY
  - COMBAT EFFECTIVENESS

* John Nieroski and Carl Welbourn, "Overview of Cost Analysis in the Navy," Concepts, Spring, 1981, Vol. 4, No. 2, p. 127.
** The authors of "Sea War 85," for example, "assumed that weapon and sonobuoy availabilty would not be constrained. ...(They) calculated expenditures of some types of weapons and sonobuoys...and compared these expenditures to current and projected inventories. (However, their) campaign analysis methodology was not designed for this purpose and the resulting estimates have very limited applicability." Cairn E. Miles and Peter P. Perla, III, Sonobuoy and Weapon Expenditures for Sea War 85, Secret, Center for Naval Analysis, CNA 80-0306.10, December 31, 1980.
*** The NARM System provided the Navy programming office (OP-90) with a tool for analyzing the cost and resource implications of various force structures and operating tempos. For an overview see Diane P. Sonnenberg and Daniel B. Levine, Introduction and Users Manual for the Navy Resource Model (NARM), Center for Naval Analyses, CNA 82-1115.08, July 28, 1982. Also see: Leonard S. Freeman, "The Army Budget and Combat Capability," Defense Systems Management Review, Vol. I, No. 4, pp. 45-52.

A contrary school argues that logistics should be viewed as a complete system subject to the same cost-effectiveness analysis accorded weapon system decisions, that both structural and policy decisions about support systems have a strong effect on cost and combat effectiveness, that support activities should have to compete for scarce funds. They note that, in the context of a limited budget, force/support trade-offs are constantly being made without even the most rudimentary information being provided to decision makers.*

THE IMPORTANCE OF "ASKING THE RIGHT QUESTION"

Hitch and McKean emphasize the importance of "asking the right question." In the last section, I argued that over the past 20 years the "right" questions about costs, benefits, and alternatives have not generally been asked. In this section I consider how support was programmed by the Navy during the development of POM-84. I will argue that critical information needed by decision makers was not developed because the right questions were not asked. The two examples are the way support questions were treated as part of the Warfare Appraisals and the programming of funds to repair avionics and other aircraft components. The Navy is currently changing the way it "asks the question" in order to provide more useful information to its senior decision makers. [SLIDE 11]

Appraisals

During POM-84, the Navy did not highlight support/force issues in their Warfare/

Slide 11

THE NAVY'S POM 84 PROCESS

STRUCTURE OF NAVY PPBS
- APPRAISALS
- GUIDANCE
  - PROGRAM
  - FISCAL
- SPONSOR PROGRAM PROPOSALS
- END GAME
- POM

* See Steve Drezner and Richard Hillestad, "Logistics Models: Evolution and Future Trends," unpublished paper, The Rand Corp.

Appraisal process. Appraisals considered, for example, the impact of the size of the ordnance magazine on the effectiveness of ships in the battle force, but did not consider the impact of current or future programmed ordnance levels on the Navy's ability to fight. They showed senior decision makers the "requirement" for unrep ships but did not consider the impact that the programmed shortage of unrep ships would have on battle force operations. While the Readiness and Sustainability Appraisal showed readiness, modernization sustainability, and force structure resource trends over time, it did not, with one notable exception, show the likely impact of logistics shortfalls on either the operation of the logistics system or the projected combat capability of the fleet.* [SLIDE 12]

Slide 12

SUPPORT PROGRAMMING IN NAVY POM-84

APPRAISALS
- DID NOT CONSIDER IMPACT OF SUPPORT ON COMBAT CAPABILITY OR COST
- PRESENTED STATEMENT OF ABSOLUTE REQUIREMENTS
- MACRO STATISTICAL PROJECTIONS
  - MISSION CAPABLE RATE FORECAST AND NAVMAT REQUIREMENT DID NOT MATCH
- MEASURES OF EFFECTIVENESS
  - % REQUIREMENT FUNDED

SPP
- SPONSORS DID NOT FULLY FUND SUPPORT

One problem with POM-84 was the way the support question was asked. Appraisals were developed under the concept that each appraisal will address broad issues within the warfare area, identify deficiencies and requirements, and recommend priorities for program development.**

An alternative view, which is being followed during POM-85 development is that;

* A review of the Navy system can be found in Bernard Rostker's, Navy Management Program—Planning, Programming, Budgeting System Study, POM-84 Assessment and Recommendations, (CNA)82-1139, 28 July 1982. The exception noted was a multiple regression analysis of observed mission capable rate and aggregate funding levels for the period FY 1970-1979. See Eliot Feldman, John Lobi, and Mark Pankin, The Impact of Resources on Naval Aircraft Readiness, Mathtech, Inc., May 1982.
** Navy, POM-84-1, OP-90.

"Appraisals provide the analytical basis for CNO decisions regarding priorities and programming resources. Alternatives will be developed to accommodate fiscal and manpower resource constraints and the impact of each alternative upon capabilities will be addressed for each area."*

Logistics Programming

The Navy's acceptance of the requirements approach to support programming during POM-84 is reflected in its staff instructions for preparing their POM. The staff was directed to identify absolute support requirements and told that internal Navy assessments of the POM would consider the adequacy of a program in terms of its ability to fund the identified requirement.** Furthermore, the various OSD and Navy guidance documents reinforced this view of adequacy in terms of "funding the identified requirement." The Defense Guidance states that, "Services will fully fund the best estimates of the requirements for component repair and procurement of initial spares." The CNO's Guidance directs the Navy staff to fully "fund ship and aviation spares requirements." [SLIDE 13]

Current research at the Center for Naval Analyses is questioning the requirements approach by examining what would happen if the support establishment were not asked to state single, absolute requirements but were asked to present cost/capability options to senior decision makers. We want to see, if we ask the question differently, whether we can modify the existing requirements methodology to provide more relevant information about costs and benefits. For example, current statements of requirements for spare parts are developed by determining the funds necessary to meet the following goals:

- XX days of wartime support for deployed units.

- XX days of peacetime support for CONUS units.

- XX days of peacetime operating stock at the wholesale level.

Another way to view the support programming problem is to determine how many days of wartime support can be purchased at various funding levels. An example of how the Navy could relate spare parts dollars to days of support is given in table 1. This table was developed using LAMPS helicopter data and Navy stocking rules for aircraft.***

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* Navy, POM-84-4, OP-90.
** Navy, OP-90 POM Serial POM 84-5.
*** This analysis was based upon work by Nancy Spruill and Peter Evanovich of CNA.

Slide 13

FULLY FUND *THE* REQUIREMENT

- NAVY STAFF INSTRUCTED
  - IDENTIFY ABSOLUTE REQUIREMENT
  - ASSESS IN TERMS OF ABILITY TO FULLY FUND

- GUIDANCE
  - DG: FULLY FUND
  - CPFG: FULLY FUND

- ISSUE BOOK (V)
  - SET GOAL
  - DETERMINE *THE* REQUIREMENT
  - FULLY FUND

TABLE 1
LAMPS SUPPLY COST/CAPABILITY OPTIONS

Days of wartime support (AVCAL)	Total cost (Millions of dollars)
60	223
70	256
80	276
90	288
100	338
110	366
120	389

The problem with single requirements statements—the 90-day line highlighted above—is that there are always more requirements than available funds [SLIDE 14] and the decision maker is provided with no information as to what might happen if he did not "fully fund the requirement." By comparison,

Slide 14

FULLY FUND THE REQUIREMENT

PROBLEMS

- MORE REQUIREMENTS THAN FUNDS

- DOES NOT PROVIDE INFORMATION NEEDED TO BUILD A BALANCED PROGRAM

cost/capability options do not arbitrarily predetermine a single operational goal, such as XX days of wartime support, but presents alternatives to decision makers which enable them to balance competing demands within a constrained set of resources. [SLIDE 15] The development of cost/capability options also recognizes the basic decentralized nature of Navy programming and tries to involve the functional manager and his traditional requirements determination models in the programming process. [SLIDE 16]
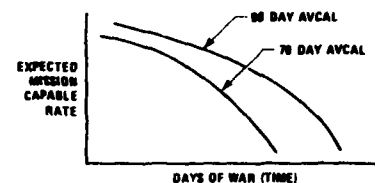
SUMMARY AND CONCLUSIONS

The conclusion of this paper is that the way the DoD has programmed support activities for the past 20 years is inadequate. Though the game plan was laid out over 20 years ago, it certainly has not been followed. The PPBS does not provide senior decision makers with the information needed to make informed decisions. The major points are: [SLIDE 17]

1. Over the past two decades, the Department of Defense has been more concerned with the identification and allocation of support costs than the development of support alternatives or the efficient programming of support resources. The Planning, Programming, and Budgeting System (PPBS) has emphasized weapon system procurement rather than the efficient management of DoD in a projected wartime environment.

2. Support programming in the DoD has not adequately responded to two fundamental changes in the PPB System which date from the late 1960s: fiscal constraints and participatory or decentralized programming.

3. Traditional support "costing" techniques, such as cost factors handbooks, manpower standards, and requirements modeling, do not provide programmers with the information needed to make informed decisions in the resource allocation system.

4. In order to insure that adequate information on costs and benefits are being presented to decision makers at all levels, the OSD and service programming staffs must develop appropriate programming methodologies which provide information about the marginal costs and marginal benefits of support programs.

Slide 15

Slide 16

Slide 17

Dr. Chu (written statement): CNA has graciously asked that I summarize the comments I made from the floor on Dr. Rostker's paper, "Efficiency in Military Decisions: The Frustrating Case of Support Programming," since difficulties in the recording process prevented transcription.

Dr. Rostker has provided a stimulating paper, and the issues that he raises deserve serious debate. But I am concerned by a statement in his report that "The current requirements and priority approaches reflect not only a lack of explicit consideration of costs and benefits, but also alternatives."

Dr. Rostker cites the FY-1983 Defense Report as part of the evidence for his conclusion. But he neglects important elements of the legislative history that led up to the Report—the Fall 1981 planning process, and the Summer 1981 program review. Imperfect as they may have been, the 1981 Defense Resources Board meetings did debate the broad alternatives available to the Department, and their costs. The DRB listened to the views of the commanders of the unified and specified commands, who—in an unprecedented step—were asked twice to appear before the DRB as a group, for a total of 4 days of meetings. Based on these discussions, and other evidence available to them, the Secretary and the Deputy Secretary chose the priorities embodied in the Defense Report that Dr. Rostker quotes in his paper. It is therefore inaccurate to characterize the Department as setting out requirements without consideration of the alternatives.

In short, I fear that Dr. Rostker's paper paints an unfair picture of the current decision-making process. I find the right kinds of questions do get asked—and that we're constantly improving our ability to answer them well. To the extent that Dr. Rostker is recommending further improvement, however, we can all concur in his prescription.

PANEL DISCUSSION: PPBS — THE FUTURE

Moderator: Dr. Bernard Rostker
Center for Naval Analyses

Dr. David Chu
Director, Program Analysis and Evaluation
Office of the Secretary of Defense

Major General C. J. Cunningham, Jr., USAF
Director, Programs and Evaluation
Headquarters, United States Air Force

Dr. Lawrence J. Korb
Assistant Secretary of Defense
(Manpower, Reserve Affairs, and Logistics)

Rear Admiral Joseph Metcalf III, USN
Director, General Planning and Programming
Department of the Navy

Major General T. R. Morgan, USMC
Deputy Chief of Staff for Requirements and Programs
Headquarters, United States Marine Corps

Major General Max W. Noah, USA
Director, Program Analysis and Evaluation
Headquarters, United States Army

Dr. Rostker: The conference discussions have been kind of mild during the past two days. However, I think the previous paper may have stimulated discussion a bit. What I would like to do is call on each panel member for an opening statement. The panels on Thursday and Friday evening addressed the past and the present. I hope this roundtable will help us understand where programming is going in the future. With that, let's begin with Dave Chu and just work our way down the table with opening comments from each panelist.

Dr. Chu: Thank you, Bernie.

I'd like to begin with three comments on the current process, and then offer some observations on likely future developments.

First is the enhanced role of the service Secretaries, one of the most important aspects of today's Planning, Programming, and Budgeting System. That was brought out in last night's discussion.

Second, I'd like to comment on the implication that near-term constancy of service shares indicates a "problem" of some kind. Would we really expect to see significant changes in service or claimant shares on a year-to-year basis? Much of the Defense Department budget, as people here know well, goes for paying the operating costs of our existing forces and procuring items authorized in prior years. You can't turn the Defense Department budget around on a dime.

Over time, however, as one of the evening panelists made clear, you do see sigificant

shifts. The Air Force share that was quoted to us for the 1960s is far different from the Air Force share today. Service shares have been debated. They generated a contentious issue at the start of the Administration, and we have made some adjustments over time. For instance, extra TOA was given to the Navy in fiscal 1983, at the expense of its 1984 TOA line, to fund fully the two carriers that we requested from the Congress. We will also see some shifts, over time, to support the strategic program, even though it represents a modest share of the total Defense budget.

For all the good-natured implicit criticism that constant service shares are somehow "bad," I should note the anguished screams from the participants when reallocations have been made.

My third observation about the present system involves the "quick drill" issue. Quickness is bad to the extent that it results in poor information being transmitted. But I have had several senior civilian appointees note that there is an advantage to quickness: You can make some difficult decisions when they have to be made quickly—decisions that would otherwise be very, very hard to make in a long-drawn-out process of consultation. No one objects to consultations, but there is virtue to speed when it comes to deciding to give certain things up.

In terms of the future of PPBS, let me outline four likely characteristics of the process.

First, I would like to extend my observations beyond programming, because planning is one of the areas of greatest interest to the Secretary. What is evolving slowly over time is a system that—while it continues the formal planning that leads up to the Defense Guidance—stresses special studies mandated by the Deputy Secretary in his role as Chairman of the DRB. These involve ad hoc groups that look at specific problems that arise during the programming process—issues that clearly cannot be resolved immediately. In that regard, I think one of the most interesting things to watch over time is the role of the Chairman of the Joint Chiefs of Staff. What kind of role does the Chairman play in adjudicating important programmatic issues via these special studies?

A second future development is greater stability in the Defense program, trying to get us away from a situation that requires us to develop a new five-year plan at least once a year. That will be difficult, given the macro instability of the Defense top line, to which others have alluded. But I think one of

the effects of multiyear procurement, which has been pressed from the acquisition side of the house, is to give greater stability to Defense programming. In the past, when budgets went up or down, we changed the number of the "eaches" we bought. That still, of course, is feasible on the "up" side. For multiyear programs, it is much harder on the "down" side. (And that may restrain the number of multiyear requests that the services make.)

The third prediction I'd like to make is that greater attention will be paid over time to trade-offs. This past summer we, at the OSD level, insisted on an explicit offset process for increases. To be candid, some of the offsets were not very good--but some were quite thoughtful. The requirement did impose a bit more discipline on the system. As a result, the DRB received far fewer proposals for increases than in previous years. (That is not always good: We don't want to suppress every possible claim.)

Finally, I think there is going to be a great deal of interest in trying to be candid about the full costs of doing business for various programs. (This is different from the point Bernie was making in his paper.) We've tried to improve the situation by using better inflation indices. I don't say they are perfect, but I think they are much better than what we had in the past. For major items, the Department is now allowed to use inflation indices that are different from OMB's. That accounts for part of the reason our TOA has stayed up, even though the near-term outlay estimates have come down. We are recognizing now the future outlays--beyond the budget year--that are going to flow from these programs.

There is also strong emphasis on making independent cost estimates--at the service and OSD levels--and on using the results, which is more painful. (Some argue that we may have succeeded only in driving independence out of the estimates. We hope that's not true.) The Defense Guidance will now include a list of the specific systems for which we expect the services to prepare their own independent cost estimates before the program review each year.

There is a similar interest in budgeting for the actual cost of a program. Once you have decided what the program will include, that requires putting in the full cost--budgeting to the ceiling in a particular contract, for example, not to the target price. It also requires budgeting for retrofits. In the past, we often decided to develop an item that would require a retrofit program to put it in the weapon system, but we didn't always allow for the retrofit money.

This does raise some difficult philosophical and methodological issues. What do you do about programs that are tentative-- programs for which you are going to preserve the option to do "X?" Do you fund the option or just the costs of getting it ready? If you take an extreme view, you either reserve a lot more money than you will actually use, or you wind up preparing for options that you can't implement. There is no easy answer to the question.

Admiral Metcalf: We have thought a great deal about the PPBS process. The reason we had this conference--I think, in part, why we are all here--is that there is recognition that process drives substance. Whether we like it or not, that is a fact.

The other overall fact in the business of programming is that it is the allocation of scarce resources under conditions of uncertainty. And so, as we look out into the future, we have these two very pervasive facts to contend with. We have a process, and we have an enormous amount of uncertainty.

The Congress is also with us. They are into the business of programming. They are part of the uncertainty. Just last night, I was at a dinner where we were honoring Arleigh Burke. (Unfortunately, I couldn't be here for what I understand was an absolutely magnificent session. Some people have characterized it, in the language of the 1960s, as an "event" or "happening.")

I assure you that when you get Admiral Burke up to talk, it is a "happening" because he really goes to it. But he and the Secretary of the Navy were being jocular. Admiral Burke was saying that he wanted to go back and command his ship, and the Secretary said, "All right, by golly, if we can get the Missouri, I'll give you command of it."

And the Secretary asked Admiral Burke, "Well, how do I go about doing that, and what is your advice on how we can get the Missouri?" And the reply was, "Just put a lot of X-band radars on it."

Now, that is recognition of Joe Adabbo, and it does several things. It is recognition that the Congress is very much a part of our business. It also suggests that, if we are going to improve the process of programming and PPBS, we have to address the uncertainty associated with Congress. We have to reduce that uncertainty, or at least get it into a process so that the uncertainty is bounded.

Now, I am not sure that that is possible. I think there will always be uncertainty associated with the actions of Congress. I am

pessimistic because what we are looking at right now is a Congress that operates largely through its staff. In fact, that may be the area in which we can bound the problem—if, that is, we can get formally into this process, somehow.

But it is a real challenge. It is a very, very difficult challenge. Here we are about to go into what is called the PPBS cycle of planning and programming. We are beginning the cycle for FY-1985, and we don't know what Congress has approved for FY-1983 or FY-1984.

This is a very, very difficult challenge, but it is part of a process, and it is part of the business of deciding on the allocation of resources under conditions of uncertainty. And I think that here is an area where OSD, perhaps, could take a lead. (I don't have any answers, David.)

Now, looking at the near term, I would suggest that the system needs discipline. And I think particularly I would look at the OSD side of the house. They are dealing with enormous uncertainties. But I don't think that the OSD staff in large measure has come around to the participatory management approach that the current Administration has decided is the way we are going to do business.

By the same token, I don't find the discipline in the system to oversee the process. We are sort of betwixt and between right now. This is a very, very difficult situation from the service perspective. We don't see the discipline that we think ought to be there to minimize uncertainty. In other words, we need a program development process where we can minimize uncertainty. And that challenge is the business of at least making a certain number of decisions and seeing if we can't make them stick when there are no other outside pressures, say, to the contrary. That is very controversial, and I am certainly glad I spoke after David. He will probably have something to say about that, and I suspect others on the OSD staff will, as well. But those are a couple of the challenges.

As I alluded to before Ray Walsh started to talk, I think another challenge is how to start making better use of management information systems. When I say that, however, I am terrified, on the one hand, because I fear micromanagement. I hear from various sources that programmers have got to get a better handle on how the commands are executing the programs. Some people believe that, when we programmers tell the commands to do something, they had better do it. And, of course, my view of that is—hogwash. That is not the real world. We programmers should try to be roughly

right and hope that we have left enough slack in the system so that our programs can be executed.

So, that is a challenge as we move toward increasing the use of information systems. We should do so in a sensible way because it is a real problem. But I think, here again, it is a programming area that we will have to face up to in the future.

Dr. Korb: Let me begin by commenting on what I think are three constants that will exist, no matter how you budget in the Department of Defense. I come at this at a great disadvantage. I am a political scientist, and so I begin to look at these things, not as "scientific due process," but really as a struggle for control over resources and power.

I think that you will always have resentment on the part of the military departments concerning efforts within the Office of the Secretary of Defense to influence the service programs. And, because of that, you are always going to have an adversary relationship, which in a sense is going to, in my view, revolve around withholding information or providing only that which is absolutely necessary. And I guess, short of the Secretary asking DIA to go down into the services to get the information, that problem will always be with us.

I think that Bernie's point to you that if only we had the information, we would have a better debate, is really like blaming the Johnstown flood on a leaky faucet in Altoona. I think the problem is that, even if you ask the right questions, you are not going to get the information because it can be used against whoever is giving it to you. I think that will always be there.

The second thing that I think you are going to have to live with is the budget authority/outlay problem that has been alluded to already. For example, this year (FY-1983), Congress cut outlays by about $8 billion in the Budget Resolution and cut budget authority by $11 billion. That to me is something that we in the Department of Defense shouldn't live with. If we are going to be cut by $8 billion in outlays, we ought to cough up the budget authority now because if we don't we are going to have the same problem next year. In other words, if Congress and OMB are focusing on outlays, we should be willing to cut the necessary amounts of budget authority. And, if you take a look at the proper ratio, I would say that to keep the budget in balance it should be about 3 to 1.

On the third thing, I think you have to keep in mind—and I think Joe alluded to it

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when he was talking about structure determining process—I think we talk a lot about logistics and support. It seems to me that it is no accident that (at least in my limited view since I have been in the Department), the service which provides best for logistics or support is the Air Force. I think that the reason they do so well is that they have a separate logistics command—the AFLC—with a four-star general who just insists on getting his share.

Now, having said that, I think there are some technical fixes or things we might do to improve the process, and I will just make a couple of comments. I would like to see something like the Air Force mission-area analysis expanded throughout the Department. I don't think we have to go into as great a detail as the Air Force does, but I think something along those lines would help structure the debate, because we spend a lot of time arguing about what we are arguing about, rather than the particular issues.

The second thing: I do think we need better information systems that will provide consistent information to the Department and the Secretary on the readiness and support costs related to specific missions, forces, and weapons systems. A lot of people have already alluded to the fact that we don't know what would happen if we changed some of the dollar levels in particular areas.

And then, finally, I think we ought to combine the program and budget reviews. It seems to me we have the worst of all possible worlds. We do the program reviews when we are not quite sure what the final budget total will be, and we don't have enough time to do the program review right because we have got to get it over in time to do the budget review. What we ought to do, it seems to me, is begin with the budget review and agree on specific pricing, and so on and so forth. And then, as we get closer to the end of the cycle and know how much money we have, we can get into the program areas. Hopefully we will have most of the budget issues behind us, and then we can make more intelligent choices.

General Morgan: Yesterday, during our presentation, I deferred a few questions until you were given the Navy presentation so that you could gain perspective on the interface between the Navy and the Marine Corps relative to the programming process.

A Question was asked yesterday: "How do the Fleet Marine Force (FMF) commanders play in the programming process?"

The FMF commanders play only in development of the operations and maintenance accounts. I would like to expand on the internal Department of the Navy programming, especially the things that make our programming process within the Department work well between the two services. First, one of the things that I think is often missed in the Navy process is the system of how resource sponsors and claimants relate within the Department. The two fleet commanders—the Pacific Fleet Commander and the Atlantic Fleet Commander—have, among the type commanders under their operational control, the two Fleet Marine Forces: Fleet Marine Force Pacific and Fleet Marine Force Atlantic. The Pacific and Atlantic Fleet Commanders have the capability to measure the readiness of the Fleet Marine Forces and devise contingency plans where Naval forces play under the unified commander. But the Commandant of the Marine Corps is charged with maintaining readiness in the FMF.

In the same manner that the resource sponsors in the Navy deal with and devise requirements for surface forces or amphibious forces, we at HQMC deal with the two Fleet Marine Forces to insure their readiness.

Several of the questions yesterday focused on "How does the Marine Corps relate our requirements to OpNav in terms of amphibious forces?"

The fundamental principle is that amphibious operations are a Navy/Marine Corps effort. For example, the Officer-in-Charge of an amphibious operation is the Commander of the Amphibious Task Force, who is a Naval officer. As such, initiatives go from the Marine Corps to the Navy in terms of shipbuilding and offloading. Capabilities to conduct these operations must and always will be a joint effort. In any amphibious operation, the antisubmarine warfare and antiair warfare capabilities must be considered. I think that should clear the picture as to how I play relative to Rear Admiral Metcalf in terms of the development of the Department of the Navy program.

Now, concerning the question of how the Marine Corps influences Naval aviation programming, especially unique Marine Corps requirements, like the AV-8B: Everything the Marine Corps procures in terms of aviation-type equipment is capable of operating from Navy platforms. For an example: On the aircraft carrier Midway, we have a photo detachment on a continuous basis. That photo detachment of F-4s has been there for six or seven years. We continually have on-carrier deployments and use EA-6s to make up for any shortfalls. We also have tactical fighter and attack squadrons continually aboard the carrier. As you can see, Naval aviation and

Marine Corps aviation are married tightly together.

Today we operate unique Marine Corps aircraft. For instance, the Navy does not operate the AH-1T Cobra, but we have a valid requirement for it. We must ensure that it is fully maritime-capable. The same with the OV-10 Bronco, which the Navy does not operate. So, there is nothing unusual about our aviation requirements, except in terms of unique capabilities. Marine Corps aircraft must be capable of operating throughout the spectrum of Navy platforms.

We interface directly with the DON, and we fight for programs the way a submarine sponsor or surface warfare officer fights for his program. I believe that may answer some of the questions, now that you have heard both the Navy and Marine Corps presentations as to how each service views that interface and how the Marine Corps programs.

One other comment: Throughout the discussions and since I have been back in Washington on this tour of duty, whenever the PPBS process is evaluated, especially in a forum of programmers and budgeteers, the planning portion of PPBS is not addressed. Whenever we address planning in this environment, we refer to the planning within programming. That first P in PPBS is to me the planning that the CinCs are charged with in carrying out defense strategy and the war plans that they have to develop in order to carry out that defense strategy within the resources they are given. Including the CinCs is fundamental to the PPBS process. If the CinCs are charged to execute defense strategy and war plans, it is essential that they be considered in the PPBS process. The changes made in relation to involving the CinCs in the last two years are all an improvement to that process.

Whatever we do to improve the information flow when decisions are made must ultimately come down to the warfighting capabilities of the U.S. and the risks involved in executing the plans which the CinCs are charged to carry out. Without them as a fundamental part of that process, I don't believe that we have carried out what I consider to be the first P in PPBS.

General Noah: The title of the panel is "PPBS--The Future." Sometimes you might ask, "What is broke, what needs to change?" I am reminded of the three-envelopes joke, where the commander comes up and is handed three envelopes, and he is told, "Open the first one when you need to." And he opens that one after, maybe, a very trying month, a week, or

a day. And it says, "Blame your predecessor." He is told, "Open the second envelope when you need to." And he opens the second envelope, and it says, "Reorganize." And then, when the commander is really in dire straits, he opens the third envelope, and it says, "Make out three envelopes."

I am not a great fan of the first piece of advice. I find that programmers really don't do too well blaming their predecessors because they are really only part of the process. The process often goes on outside them. We seem to talk sometimes as though we are running it. I can tell you that is true in the Army.

The reorganizing or redoing process creates a great deal of turbulence; so, you have to look very carefully before you do that. And I am not saying that it is bad. I would certainly say history plays a part and probably has in the programming as much as it has in any part of the Defense Department. And it has been very interesting.

I was unable to hear the first night, but last night was very interesting, and, like many at the table here in uniform, I'm back after having escaped (meaning that this is my second tour at PA&E).

PPBS, I think, is the sort of process that is supposed to serve and not be served. And it is the rational process some people say it is. It has got a periodicity of about one year because, on the 20th of January, we must turn something in and cross the river. And that goes to Congress. So, with David's (Chu's) remarks, I tend to agree. It is proposed by the President; we serve him, and the chain of command goes right on down to the services. It is done via a dollar constraint that is driven by two things: One is demand, that is, what we need to do. And it is driven by the supply of money, which is the economy that has us all looking and biting our fingernails.

Change those things, change the period, buy any old programming, I don't really have any objection to that. I am just not sure how far we will get. Len Sullivan mentioned last night the marginal POM that the Army bid on a few years ago. We tried that. Not too many liked it. That is a very good way to do it, incidentally. Hand it out and say, "Okay, take it," and see how many do.

But I am not against going to changes in the business. I would say, Dr. Korb, on the combined program budget reviews, sometimes (as in everything) you need to look at the target, as I suggested in my talk yesterday. The services are not all necessarily the same. Some

may be able to do it better than others. But we tended to do that this summer, for instance, recall an issue in Book 8. We came up with tennis shoes being compared with Tridents. And that was just a little bit too much for some of us to bite off every once in a while. So, the problem that you get into is the execution of it when the rubber meets the road.

Whenever the aircraft nears the ground, you say, "Oh my God, you've got the tires!" or when a paratrooper hits the damned DZ, there is a moment of truth. But it gets difficult to execute at times, unless the rules are understood.

There are some parts of the process, incidentally, that are pretty good. One is the framework, the FYDP. I really don't find too many people throwing darts at it in total. In fact, we had a drill last night with the Chief of Staff and this morning, and we pulled out the old FYDP, and we are plowing through it, and we can tell where we are from that account.

My views of the process: In framework, ever since it started, it has grown much more sophisticated in analytical tools. And--I mean this sincerely--it is definitely paced by the advance in capability of information, formatting (I would put the formatting in there), and certainly the processing. As the POM goes up and down in size, that is a matter of how much information we forward in POM and how much in tape, but certainly the computer has helped us there. The analytical capability has spread, I would also submit. In the early days, that was concentrated in a few spots-- PA&E being one of them, "systems analysis" as it was earlier called--and in the Army the same thing occurs. Today, I would say, in the Army and certainly in OSD, that analytical capability has spread out to elements of the organization. We don't just say "PA&E" now. We say "PA&E, MRA&L." We say "R&E," to a degree, etc. That analytical capability is out there, and sometimes it is used to fight each other or work for the benefit of the whole, and I think you could argue both ways, depending on which side of the fence you are looking for.

The execution part of the process: PPBS basically, in my view, heads toward a Congressionally accepted program, but the execution part of it is important in an accountable sense. We are trying to do that in the Army, and I think we will be able to do that fairly well with certain systems. The participation of executives is getting a lot better. The DRB, I think, is very good. As I pointed out somewhat jocularly in my talk, Secretary Marsh says that programmers are very nice people but

they talk funny. And going in on a poop-up session, before Secretary Marsh goes in or the Chief of Staff goes into a DRB session, is very interesting. But I will tell you that it is very effective for all of us. It is effective certainly at the Secretary of Defense level, and we appreciate that in being able to understand the issues, and it makes our job harder to a much greater degree, I can assure you, as far as that goes in the DRB business. But the DRB is good business. I don't think that most of the decisions that are made--I have been saying in most of my talks around the country--appear to be made after consideration by it. I am not saying "made right there" because sometimes you can't make decisions. In the Army, there is no doubt about it.

Decisions are rarely made while we are sitting at a table somewhere. They are made at different places. I would say that we have to look at substance issues in the future with this PPBS process. One is the strategic-versus-general-purpose-forces issue. That is one that is plaguing us. We are getting decisions supposedly at the end of the month on it. That is going to affect a lot of us. It is a concern that we have. I would submit that it goes into the deterrence-versus-warfighting capability of our forces, as to how we want to do that. It is of concern to all the services.

Fiscal Guidance is an interesting area to look at. What do you put out as the top or bottom line? I mentioned that there is a demand in the supply aspect of that. Sometimes some of us feel the Fiscal Guidance that ended up this summer might be a little optimistic. And the problem with optimistic Fiscal Guidance is that I don't get optimistic, but the charges who are around me get very optimistic. And we start to do some things out there and lay some programs out and actually talk as if it is there. And I have to be the bad guy later on. Maybe the good guy. I would certainly like it to be good. But it is a concern of mine to make us do the things we need to do at the time. That can be done at times. I will admit that you might cut out an option that you go with. The outlays-versus-TOA problem comes up there.

We are really big in the outlay business. The Army and our compatriots in the Marine Corps can disappear in a hurry, if you want to really take outlays with the amount of manpower we have. Force size--or I would put it another way, full funding versus hollowness, as General Meyers stated in the past--is a concern. And that ties into risk; I don't know

if you can go into a risk analysis and get all analytical about it, get numbers out there, and so forth. Before you know it, most people start to go to sleep or start to look out the window--at least, the non-analysts. And, again, we are serving our community there. But I think we do need to address, at least in some terms--perhaps not in exactly quantifiable terms but certainly in qualifiable terms--risk analysis in terms of systems acquisition in support funding, the amount of sustaining that we want to do.

As Colonel Carney well pointed out over here, we are 100 percent in horses, but, unfortunately, they are gone except for the wedding carriages at Arlington and the funerals. So, that gets to be a problem such as: How obsolete do you want to suddenly find yourself with a stack of ammo? But, again, I am not complaining. I think the direction we are going right now is certainly realistic if we are going to have a war, but whether it is realistic in terms of putting together the proper money into the proper force at this time with the amount we have, I am not sure. So, I would submit that risk needs to be looked at.

The role of PA&E comes up. I am a PA&E. I work for the Chief of Staff. I am not a separate staff member; I am just one of his office. He doesn't have to go through any protocol when he calls me. The members of the *Army staff are substantive individuals, as* they are in the other services, quite independent. Some could call them almost czars at times. They are not that way there. But the role of that, I think, is very interesting. I think there definitely is a need for a PA&E, and I would emphasize all of those elements.

As far as the organization within the department is concerned, my boss, General Meyers, speaks well for himself. Most of you may have read his article on the JCS; it came out some months ago. And he has some definitive views on that. He also has definitive views which he would be developing, I would say, as far as the JCS/OSD arena is concerned. And there you get into the area of what we might call "adversarial role" versus what I would call a "tiered role" as to what we should do. There will be some of that, to a degree, between those two and I would add on that. We have come up in recent years, as David reminds me, to a good-sized Congressional staff (very good size), somewhat independent--strike "somewhat"--that we have to concern ourselves with also as we go. And that is all of us, no matter whether OSD says, "Don't talk over there," or "Do talk." The analysis about that is of concern. I know that has been long, but those are my thoughts about the process and the future.

General Cunningham: With emphasis on the future, I would like to offer these thoughts. First, we know we are facing an increased enemy threat, and I would submit that, as those of us in the programming process look to the future of PPBS, we must not forget that the greatest threat that we face is the one that we do not know. It is surprise. And let us be careful in our process that we do not nail ourselves down to situations that anchor us in a series of Maginot Lines and/or systems that could rob us of our flexibility to deal with those unforeseen events that we know as surprises. Yes, a tighter economic environment is facing us, and that has come up a number of times during the conference. The tightness of the economic environment can be seen as we look at the amount of money in the federal budget that could be considered discretionary. We know that, from the Secretary of Defense level, the feeling is that perhaps only 7 percent is discretionary; and, as I mentioned earlier, by the time we Air Force programmers work those "must have" programs into our POM, we are down to less than 2 percent flex. That is a tight environment, and it is exacerbated by political instability. With every change in administration comes even greater instability. We all know that there are now more active, political action committees, groups, interest factions that have become more vocal and more effective. In some instances, such organizations make it difficult for us to get the resources we need. That leads into what Dr. Korb mentioned in terms of that struggle for resources and power. I am a little nervous about the business of power because, even in my humble experience, I have noted that some of us try to take the leaves out of the politicians' books and think that we in the defense business should internally assign ourselves to efforts to gain power. I think that is a very bad situation where that exists.

I would say a substitute for a search for individualized power is closer cooperative interaction in all future PPBS OSD/service dealings. This conference is an example. Dr. Chu's Mil-5 is an example. The DRB is an example. Our ability to work across more of the OSD staff is an example, and that must continue. We have to work in increased harmony-- we absolutely must do that.

Of course, that runs opposite to the notion that certain people, certain areas, certain offices would accrue power to themselves. It also says that that need for top-down guidance that we all seem to crave (I, for one, certainly), both within the Air Force and within Defense, must be dealt out in a more realistic and more objective way-- certainly in a way that is more sensitive to

what our total purpose is in defense. PPBS needs to be sensitive to that, and as PPBS develops and as our programming techniques develop, as this art is refined, we must be very careful that we don't increase the activity trap that we already find ourselves in.

Dr. Korb alluded to the idea of a single review cycle, and perhaps that would be a step toward somewhat mitigating the activity trap that we often find ourselves in--doing things but never really coming to adequate conclusions before we start something new. This dissipates our energies on activities that milk the executive and decision power of an organization on very trivial things. General Noah mentioned, just in passing, the time and effort spent in programming tennis shoes, but we have all done worse. We have got to be careful of that. Avoiding that requires top-down guidance.

The idea of knowing what the gold watch, pet rocks, and sacred cows are requires top-down guidance. And there are such things. Let's be realistic. But let's know them, understand them, and agree upon them up front and let's not debate them ad infinitum. When it is canned and we are going to step off in a certain direction, let's do it. And I think that with closer and more cooperative interaction we can get there. Certainly, we need to get there in a better fashion than we do now.

I would offer one last thing. Yes, politics is all around our great free democracy and is part of the basic fabric. And that is as it should be. But I would offer that, as we look to PPBS of the future for the Department of the Defense and especially programming for the Department of Defense, we must remember what is another part of our basic fabric, and that is duty, honor, country. That is integrity. That is no-nonsense, doing business the best and most honest way we know how for the good of this country. Thank you.

DISCUSSION

Dr. Rostker: Let me kick off the questions. We had two evening sessions in which we traced the resource allocation system of the Department of Defense over the last 20 years, and I think the question that I have gotten in speaking to each one of the panel members is, in a sense, an assessment of how well we are doing today. We have a system today that is very different from the way it was several years ago, in terms of roles, players, intensity, and guidance. I would like to start with Dave and ask him how he feels the system is supporting the Secretary of Defense. Can the process be better? Is the product better?

How would you measure the product? How would he assess the changing role of OSD, particularly his shop, in terms of--if you will--less micro management. But is there in effect, more macro management?

Dr. Chu: Well, that is a tall order. I think an honest answer to the first question--"How well is the process doing?"--requires you always to say that it is imperfect. You would like to think that it has improved. Not having been part of the process before, it is hard for me to make fair comparisons, and any that I might offer would seem to be, perhaps, a bit prejudiced.

I would like to touch on a couple of areas where, I think, we've seen improvements. As General Max Noah noted earlier, the process is there, and should be there, to serve the Secretary--not the other way around. So its structure, its rules, and how it functions ought to be tailored to his management style, the way he wants to approach the Department's problems and the challenges we all confront. I think that two of the more interesting innovations of this Administration, reflecting this particular Secretary and Deputy Secretary's outlook and style, are:

(1) The expansion and restructuring of the DRB--adding the service Secretaries, but then insisting that this is a "principals only" meeting.

(2) The decision to invite the Commanders in Chief of the unified and specified commands to come in and offer their assessments twice a year--once after completing the "for comment" draft of the Defense Guidance, and then again just after the service POMs are received and before the program review begins.

I think what is important about these changes is not what is reflected in the formal documentation (by which, I think, the system is too often judged--especially retrospectively, because that is what you can see and find). What's important is the interchange of ideas and the flow of information up to the Secretary. I have seen major changes in perspective occur for the Secretary and the Deputy Secretary, not because of any immediate presentation, but because of the themes that they are hearing.

The great value of the changes is the dialogue created between OSD and the military departments. There will always be something of an adversary relationship there, and there probably should be. There is a discovery process going on, and the different institutions have different objectives and values. But I

think it is unfortunate when the adversarial character affects our ability to address the central questions candidly, without posturing. In my estimation, there has been a significant improvement in the dialogue.

There is still a problem in dealing with minor issues under the current process--perhaps less of a problem this year than last (although others may disagree with me). Though the DRB has become the forum for debating major questions, there are issues that fall somewhere between "small" (the tennis-shoe level) and "major" (those suitable for DRB attention). There is really no good focal point for these. That is one of the problems we need to work on.

In terms of where we might go from here, I think the emphasis is going to be on improving the planning part of the process and trying to give discipline to the decisions already made. One of the endemic difficulties on both sides of the fence, for both OSD and the military departments, is that some decisions are never laid to rest. That is bad.

Now, I do not mean to suggest that you should make a decision and then blindly close yourself off from new information from the real world. New test data arrive, and a program that looked wonderful yesterday now looks terrible. New fiscal realities intrude, and you may decide you can't afford something.

But revisiting decisions in the absence of such information is pernicious. This is not just a failing of the OSD staff--although their sins are often dragged before us for discussion. It is a two-sided problem.

I listen to some of my colleagues who have seen the process evolve over the years. I learn there are systems that each year the OSD staff manages to jam in during the program review. Then, each year in the budget submission, the services take them back out. And when the POM arrives in the spring, these systems have disappeared once more. This is one of the managerial problems we need to work on.

Dr. Rostker: Larry, since you also shared the OSD arena, could I get you to comment on the changing perspective?

Dr. Korb: Again, as Davi·' mentioned, this is my first time in the process. I have looked at it from the outside for a number of years. I think what you see--since we created the Department of Defense--is a swing back between centralization and decentralization. I don't know for a fact, but I would estimate that when Cap and Frank showed up in Washington to take over the Department of Defense, a lot of people came and gave them advice, and I imagine that a lot of the advice went like this: (1) His predecessor had centralized too much, and (2) The people close to the decisions were not making them. That kind of fit in with their management style. It happened before when Laird took over from McNamara, and so you see the thing swing back and forth.

In my view, what would happen if my Air Force colleague is correct and we last only 4 years and Secretary So-and-so comes up in 1984 and, early in 1985, starts talking to people, they will probably say, "Well, it has gone too far. The DRB has too many members." I would tend to agree. I don't think you need all those people. I think that you do need to have service participation. I, for the life of me, cannot figure out why you have to have a Chief and a service Secretary, because one or the other should be representing the service. I don't think that the Under Secretary for Policy needs to bring his Assistant Secretaries. I think there ought to be one person in there from policy, and the same way with DDR&E. That would, I think, cut it down and make it more manageable.

Dr. Rostker: Before I throw it open to general questions, since many of the service programmers have been in the DoD programming arena before, would anyone choose to comment on the changing perspective?

Admiral Metcalf: You know, Larry, I think that you and I have got to sit down one of these days. Because I must say that everything you said I disagree with. Not that I don't understand where you are coming from and all that, but I could argue on almost any issue.

But that, I think, is probably the strength of what we are doing. What you find yourself in an advocacy position for is one of the four pillars--readiness. This was articulated by your concern with the outlay-versus-TOA problem. This makes your job extremely difficult, because you are competing within the Office of the Secretary of Defense for resources to meet your responsibilities related to the four pillars: readiness, sustainability, modernization, and force level.

I guess my problem with that is that we can't define readiness very well among the various elements of the Department of Defense. We start right off on square A, where the Navy and the Army are about as far apart as you can get on a common definition for readiness. Both definitions are useful.

This is bad only in the sense that it makes it hard for you to do your job. But,

from our perspective on how we allocate resources in the Army or the Navy, we find our definitions useful; so, we feel that they are pretty good. But that makes your job very, very difficult, and it must be practically impossible for you when you have to act as an advocate within the Department of Defense for one of these pillars.

And, so, I don't know what we get out of readiness unless we balance it against capabilities. As Dr. Rostker asked, "What does readiness give us in terms of capabilities to do things or not do things? What are the trade-offs among force building, force levels, modernization, and capital investment?"

I find that the advocacy approach you take, in the way you address yourself to the DRB, is hard for us to handle. It is hard because we have to look at this thing in a balanced way. And we think we do. When we get one of the four "pillars of defense" coming at us--particularly readiness, which we feel is not balanced because it appears to be readiness for the sake of readiness--we have a real and difficult problem.

Before I leave, I would like to say that I think the answer to your question, whether we are doing better now in the Department of Defense, is a resounding "yes." I first came into this building for POM-72, which was the second fiscally constrained POM. I think that the constrained Fiscal Guidance is what has allowed the PPBS to continue in existence. I think, on the first night of this conference, the panel asked why the PPBS has survived.

It turned out that when Mr. Laird put in Fiscal Guidance, he really institutionalized the PPBS because it was a system in place, readily available for his system of management, if you will. We have come a long way since 1972, and I think I agree with David (Chu) that the two significant things that have happened in this Administration are the expansion of the DRB and the CinCs' participation in that review. These represent very, very significant improvements, as I said in my remarks before.

Dr. Korb: I think you take me wrong. I didn't tell the Secretary to make readiness his highest priority. He told us that that was his highest priority. Therefore, we are debating the wrong issue. If the Navy, in those deliberations, had convinced him that force modernization was more important, then I think I would be doing what you accuse me of: advocating something for the sake of advocating it. I only advocate that because of the fact that that is what he wants.

And, also, the services measure the four pillars differently. We accept the way that the services measure them. We don't tell the Navy how to calculate their mission-capable rates or anything. You make those determinations. All we do is look at what you have done to see what it is going to do in the mission-capable rate areas. So, I think that is a fundamental, philosophical thing. If you are correct, we ought to go back to the Secretary in the guidance phase, and say "Look, you can't do what you want to do. You can't achieve these mission-capable rates of 60-70 percent of tactical fighters, for example. Maybe we need better goals."

This year, in the DRB, this question came up, I pointed out to the Deputy Secretary the cost of these goals, and he said, "Maybe we ought to go back and reassess our goals."

David and I then sat down and reconsidered. We decided to fall off some of our goals, and we established an intermediate goal. And then what happened was that we were challenged, not on the goals, but on our calculations. (This goes back to the information problem.)

General Noah: As for David's contention that it is improved. I would say, "Certainly." As I have said before, the DRB is improved. I would agree completely that we will probably measure readiness the same in a general sense and, in a specific sense, differently. And I don't know whether anyone from the office of the Under Secretary of Defense R&E is here-- Lou Michaels is not here--but I would say that there are certain needs in the services that both the Navy and we reflect in our POMs. If you want to roll them into four pillars, you may. We prefer not to, as I said in my talk yesterday. We would prefer to have those meld into each other a little more. But, frankly, we had better do with what we have now, or else we are not going to be capable of doing our mission.

But, as for readiness, I doubt that there is an argument. I think I can speak truthfully for the Chief of Staff and Secretary that readiness is now number one. They agree that that is number one. But I think there is a policy context there that is very well argued at the DRB; coming up on our side, it is still an issue--probably still will be--that our bosses will argue in that context.

Let's get back to the system. I think the system we are discussing is working quite well. And it is, as I say, at the Executive level that it should have been in the first

place, rather than just thrashing around between the agencies.

I would like to make a comment—I forgot to, earlier—on something that David brought up on the decision process. He said that fast decisions actually may be good. I agree to the extent that the decision is over and everybody can go home to their wives and loved ones, and they don't have to thrash around on it anymore. But you can do dumb things in fast decisions, and I would submit that, for many of my compatriots, when they say "Lengthen the process or combine programming and budgeting," and so forth, they really want more time so they can get more information together for the decision process. I would submit that sometimes when you have the time, you ought to take it and use it as wisely as you can.

Dr. Rostker: Could we take a few questions from the floor?

Question: Everybody has been mentioning the JCS. I would like to ask Dr. Chu how he views the current role of the Chairman as a member of the DRB and how he thinks that is related to resources and planning programs.

Dr. Chu: In all candor, I think it is in flux. As I sense it (and I touched only very briefly on this point in my opening remarks), the Deputy Secretary is really looking to the Chairman as a source of military advice independent of the individual military departments. The Chairman is the only military officer with a full seat on the DRB. The Chiefs are always invited to DRB meetings, but they are clearly there in support of their service Secretaries. The Chairman is not.

I think it is instructive that for a number of planning-oriented studies ordered by Mr. Carlucci after this summer's program review, the Chairman was asked to take charge. I think that is going to present a challenge for the OJCS because that is not the charter it has always had. It is being asked to assess something independently—to act outside of the normal "red-striping" process. Institutionally, I think that is a very interesting development.

Regardless of the specific organizational changes made to the Chairman's office and the Chairman's role (which, I think, are less important than how a Secretary of Defense treats his Chairman, what he looks upon him to do), I think you can make a system do a lot of things for you if you have sufficient leadership in it. A very interesting experiment has just begun. I am not sure we should judge on the basis of the first few months of results.

Question: Dr. Chu, the 97th Congress, I think, offered about six bills concerning a biennial budget. However, we don't seem to be going in that direction. I would be curious to hear your reaction to that idea.

Dr. Chu: I doubt anyone here would oppose a biennial budget. But it will take a long time to get from here to there. I think the last Administration made a mistake in not responding to John Ford. (John gave a public address in which he raised the issue, and no one from the last Administration responded as far as I know.) There were those in the Congress who were opposed to it. I think the Appropriations Committees, particularly, would be likely to question a biennial process.

Some may be unwilling to start the long dialogue necessary to get from here to there. It would obviously begin with the authorization bill. But I suspect the dialogue should begin.

Dr. Rostker: The intent of this conference was to expose to contractor and service personnel alike the programming systems of the different services, to get a look at what some of the services are doing in terms of additional support for programming, to provide a historical perspective, and then to have a quick glimpse at the future

We would like this dialogue to continue, and we will be polling the principals and interested parties as to whether, on a recurring—but not too frequent—basis, an evening roundtable session with invited speakers might be worth considering.

The PPBS is, I believe, one of the most important management systems. It truly is a set of systems that reflect the individual decision-making styles of not only the Secretary of Defense but the service Chiefs and service Secretaries. And the premise of the conference, I would argue, has not changed. That is: We can learn a great deal from each other as we go through this common OSD framework. With that, I thank you all for participating.

APPENDIX A
LESSONS LEARNED FOR THE NAVY

LESSONS LEARNED FOR THE NAVY

by

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INTRODUCTION

A main purpose of the conference on the PPBS was to see how the programming procedures, processes, and methodologies now in use by the services relate to the Navy's POM development process.

This summary, viewing the conference from the perspective of "Lessons Learned for the Navy," is grouped into three areas: (1) organization for POM development, (2) the role of analysis in POM development, and (3) programming philosophies.

ORGANIZATION FOR POM DEVELOPMENT

The Navy

The Navy's organization for POM development is unique. The combined efforts of resource sponsors and independent appraisers yield a framework for developing tradeoffs among weapon systems and between force levels and support. The result offers significant advantages for POM development.

The Navy system enables experts in warfighting to build the programs. It creates a basis for independent assessment of ways to allocate resources across warfare areas to improve combat capability. The Navy's chief is also able to provide programming and fiscal guidance in a structured manner early in the cycle.

The Air Force

The most striking aspect of the Air Force's organization for POM development is the major role of its four-star field commanders. Considerable program innovation starts at the command level. The Navy's major commanders, by contrast, have little to do with the POM process and generally look to OpNav to take care of the future. The four-star commanders of both services are warfare-oriented, but the Air Force commanders are major resource managers as well.

The Air Force develops its POM through a series of 13 panels oriented toward the major commands. These panels use inputs from the major commands and the Air Staff to build the

Air Force POM from the bottom up. The major commands and the panels brief the Air Force Program Review Committee (an 0-6 level committee) about their ranked lists of programs. Representatives of the major commands also attend the briefings for the Air Force Board (the equivalent of the Navy's Program Development Review Committee) and the Air Force Council (corresponding to the Navy's Program Review Committee and CNO Executive Board).

Closer involvement in the POM process by the major field commanders of the other services will have implications for the Navy, particularly if the role of the CinCs in the PPBS continues to expand. By giving the major commanders an active role, the Air Force has forced them to prepare prioritized lists of their program proposals. Presumably, these lists are more closely linked to the warfighting missions and capabilities of their commands than would otherwise be possible. This may be a way to gain a better understanding of the capabilities the program is buying. The Air Force believes the major commands can be helpful in this regard. It has also involved them directly in its analyses of program force capabilities (more about this later). However, the resource management role of the Air Force major commands suggests staff organizations significantly different from those of the Navy.

The Army

The Army's POM development process also includes formal opportunities for the major commanders to participate, although these opportunities do not seem as extensive as those in the Air Force.

The primary method used by the Army's major commands to influence the POM is submission of an annual Program Analysis and Resource Review (PARR) document. Using the PARR, commanders of major commands present their operating requirements to Headquarters, Department of the Army, for review and incorporation into the overall program.

A second opportunity to influence the program occurs early in the cycle, before program development gets underway. Commanders can then make a formal evaluation of the previous POM. This assessment takes the form of a command letter that identifies problems that stand in the way of command missions.

The POM assessment letters are used by the Army staff as it develops specific program packages. Every fall, the Army Commanders' Conference provides a mechanism for raising issues. There, four-star commanders and Army staff principals meet with the Chief of Staff

and Vice Chief of Staff to review Army-wide matters. Decisions at this conference often result in program actions. In addition, the views and interests expressed at this conference by the major commanders receive consideration as the Army staff develops the program.

The Marine Corps

The Marine Corps staff, though similar in structure to the Army, differs in its organization for POM development. First, it must allow internal development of "green dollar" Marine Corps program packages, the programs included in the Marine Corps appropriations. At the same time, however, the Marine Corps must develop separate proposals for programs funded through "blue dollar" Navy appropriations. As a consequence of having to develop two separate POMs (blue dollar and green dollar), the Marine Corps participates actively in two organizational structures: the internal Marine Corps POM development committees and the Navy's committee system for POM development.

Also unique to the Marine Corps is its organizational process for prioritizing program packages other than those which provide minimum essentials. This process is highly structured and requires active participation by much of the headquarters staff. It involves three groups:

- The Deputy Chiefs of Staff, who identify programs associated with mission areas of concern

- Program sponsors, who develop priorities within the mission areas

- Staff specialists (not sponsors), who establish priorities for everything in the Marine Corps program above the minimum essential "core" program.

The prioritized lists are then evaluated by the POM development committees, where final adjustments are made. This process is discussed further in the section on Marine Corps analysis.

THE ROLE OF ANALYSIS IN POM DEVELOPMENT

A major concern of the conference was the role of analysis in the development of the POM. Within the context of the different organizational structures used for developing programs, the services have created different roles for analysis.

The Air Force and the Army seem to be more sophisticated than the Navy about analysis as a foundation for POM development and assign to analysis a more central role in the process. For example, the Army uses a fairly detailed, scenario-based Total Army Analysis (TAA) methodology to construct a "total" Army program force. That "total" force provides the force structure basis for developing the Army program.

Similarly, the Air Force uses Mission Area Analysis (MAA) during the planning phase of the PPBS to develop a list of capability improvements. MAA is a sophisticated analytic tool that is scenario-based, includes the establishment of priorities, and is influenced by the judgment of the major commanders. The product of this analytic endeavor, the Air Force Planning Guide, seems to provide a substantial part of the framework for the Air Force POM. In addition, this process appears to provide the Air Force with a mechanism for trade-offs between program cost and capability.

Both these approaches are comprehensive in the sense that each creates an analytic framework with a common strategy/scenario from which alternative force levels and mixes are examined. Moreover, the Air Force and Army have institutionalized these processes. Though one may question the quality of output from these processes, both appear to offer at least one distinct advantage: a consistent, comprehensive, analytic method for examining and explaining alternative programs.

The following sections expand on our observations concerning the role of analysis in the services.

The Air Force

The Air Force's Mission Area Analysis (MAA) has drawn considerable interest among members of the OSD staff, particularly those in OASD (MRA&L). This planning/programming tool is of interest because it enables planners to determine the potential effects of program alternatives on mission capability in a consistent, scenario-based context. This was highlighted (indirectly) in Major General Cunningham's presentation on the Air Force's POM process and, in more detail, in Colonel Donahoe's presentation on Air Force Mission Area Analysis.

The Air Force uses MAA as a tool for understanding its capability to achieve identifiable objectives. This analysis is completed

before POM development begins and yields a list of capability improvement needs for use in the programming process. The same list furnishes the framework for establishing the required Air Force force levels contained in its Strategy, Force, and Capabilities Plan (SFCP). The MAA process identifies and determines the relative importance of factors that limit Air Force capabilities. During POM formulation, the MAA process assesses the mission -capability effects of proposed changes in the program. The record of the MAA assessment appears in the Air Force Planning Guide, which is produced every other year.

The Army

The Army develops a "program force" as a basis for POM development. That program force translates gross allocations of force structure into more detailed elements of force content. It states constrained requirements for Army divisions and specifies requirements for nondivisional combat and tactical support increments. It includes the numbers and types of units to be fielded, maintained, and supported over the 5-year program period.

The divisions, battalions, and companies of the program force must meet two criteria: (1) The units must be attainable within resources that are expected to be available, and (2) the units must be approved by the Chief of Staff as adequate in type, size, and quantity to execute the strategy at a set level of risk. Total Army Analysis (TAA) is the method of force development that provides the framework for developing the Army's program force.

TAA provides a "foundation" force requirement for the staff to:

- Align force structure requirements with allocated resources

- Integrate force structure changes into the PGM

- Evaluate the effects of material acquisition programs on force structure requirements

- Assess program force capabilities, deficiencies, and risks

- Project force structure requirements for the extended planning years.

Some aspects of this method appear to be quite useful--if they work as described. For example, this methodology appears to provide

the Chief of Staff of the Army with a technique for looking at the Army program in both macro and micro terms. In the macro sense, it seems to create an integrated framework within which to examine--on the basis of a common strategy and consistent scenarios--force alternatives that differ in structure, mix, and capability. The lower-level analyses appear to enable planners to consider battlefield engagement issues in the context of the "total Army."

The Marine Corps

To augment and strengthen its programming process, the Marine Corps has introduced a decision-analytic technique for collecting and using the professional judgments of its staff. This technique is used to develop priorities for program packages above the minimum essential level. This activity is distinct from other Marine Corps analytic efforts that address more objectively the costs and benefits of program alternatives. Instead, the decision-analytic technique focuses on the POM decision-making process, using structured value judgments by the staff to choose among program options.

The decision-analytic technique appears to work effectively for the Marine Corps. But it requires a substantial amount of staff time and participation by a large number of people.

PROGRAMMING PHILOSOPHY

After 20 years of PPBS, the basic philosophy of program development is still a hotly debated question. The conference ended with a roundtable discussion on current and future programming issues. Two views about programming guidance were presented:

(1) DoD guidance should be less specific, focusing on cost/capability information for decision makers.

(2) DoD guidance should be specific enough to enforce SecDef decisions and ensure the allocation of adequate resources to support functions.

The first view is based on the thesis that senior decision makers will receive better information from POMs that focus on costs and capabilities--not requirements. Proponents of this view noted that existing Defense Guidance tells the services to identify support requirements and then fund them in full. They also noted that the fundamental problem with this approach is that requirements always

exceed the money available. The inescapable result is that the requirement is never fully funded in the POM—or is "adjusted" downward so that it can be fully funded. It was argued that senior decision makers do not receive useful information regarding potential effects on combat capabilities and that existing Guidance leads to full funding of support requirements without knowledge of the available trade-offs in terms of costs and capabilities.

Proponents of the second view argued that the proper role of guidance is to enforce SecDef decisions. They argued, further, that the programming system is biased against support and that the SecDef guidance must therefore be strong enough to overcome this bias. Citing a desirable outcome—more resources allocated for logistics—the proponents of the second view argued that it would be difficult for the OSD staff to focus on costs and capabilities because the services do not provide the data needed.

The discussions on programming philosophies were inconclusive. The question remains: Is there a better alternative to the current system of Defense Guidance? These discussions suggest that the dialogue on programming philosophy should continue.

APPENDIX B
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LIST OF PARTICIPANTS

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APPENDIX C
CONFERENCE PROGRAM

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CONFERENCE PROGRAM

—Thursday, 4 November 1982—

Opening Remarks

Dr. Bernard Rostker
Director
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Service PPBS: A Comparative Review
of Air Force Programming

Major General C.J. Cunningham, Jr., USAF
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New Initiatives: EPA and Long-Range
Planning

Dr. Rolf Clark
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New Initiatives: PPBS II: A Mission
Approach

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New Initiatives: Mission Area Analysis

Colonel James B. Donahoe, USAF
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Panel: PPBS — The Early Years
Moderator:

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Panelists

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Mr. Russell Murray 2nd
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Mr. John E. Keller
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Panel: Continuation and wrap-up

Service PPBS: A Comparative Review
  of Army Programming

                    Major General Max W. Noah, USA
                    Director
                      Program Analysis and Evaluation
                    Headquarters, U.S. Army

New Initiatives: A Technique for
  Mission Area Planning

                    Dr. Robert M. Berg
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New Initiatives: Capability
  Programming

                    Mr. Stephen M. Drezner
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Service PPBS: A Comparative Approach
  to Marine Corps Programming

                    Major General T.R. Morgan, USMC
                    Deputy Chief of Staff
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                    Headquarters, U.S. Marine Corps

New Initiatives: Decision Analytic
  Support for Program Development

                    Dr. Cameron R. Peterson
                    Decisions and Design, Inc.

Panel: PPBS — The Second Generation
  Moderator

                    Professor Sherman Blandin
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                    Mr. Leonard Sullivan, Jr.
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                    Mr. Philip Odeen
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Panel: Continuation and wrap-up

Service PPBS: A Comparative Review
  of Navy Programming

Rear Admiral Joseph Metcalf III, USN
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New Initiatives: Efficiency in Military
  Decisions: The Frustrating Case of
Support Programming

Dr. Bernard Rostker
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Panel: PPBS — The Future
  Modertor:

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  Closing Remarks

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